CONTRIBUTORS TO LIFELONG MODERATE PHYSICAL ACTIVITY IN THE LIVES OF WOMEN

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by Rebecca Jessen Lang

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CONTRIBUTORS TO LIFELONG MODERATE PHYSICAL ACTIVITY IN THE LIVES OF WOMEN

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An abstract of a Dissertation by
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The Problem. We know little about what makes people lifelong physical exercisers. We have an understanding of the benefits and the barriers of physical activity but we have not examined the life stories of lifelong physical movers, especially females.

Procedures. Two in-depth life history interviews of eight women were conducted to identify and understand the contributors to sustained physical activity and the role physical activity has played in the lives of lifelong physically active women between 58-72 years of age. A combination of snowball and theoretical non-probability sampling techniques were used to initiate contact with participants. The grounded theory approach was utilized. Data were analyzed using content and constant comparative analysis.

Findings. Six themes, supported by subthemes, emerged from analysis of the data. The participants: perceived themselves as physically active, lead physically active lives from childhood through adulthood, related more to father than mother, loved the outdoors, perceived few barriers, and perceived benefits of physical activity. They did not like to sit and enjoyed the feeling of movement. They believed their motivation for physical activity was genetic; they were just like their fathers. The wave theory of physical activity emerged from the data which was supported by the findings that the participants engaged in moderate physical activity through out their life, and they never perceived themselves to be sedentary individuals.

Conclusions. To increase the probability that females will be lifelong physical movers several factors need to be incorporated into their lives. These factors include: providing early positive physical activities for children through play groups, family, and school activities, participating in outdoor activities and providing community resources. The support from a father is an important factor in sustaining lifelong physical activity although the magnitude of this factor is unclear. Perhaps most importantly, emphasizing moderate physical activities rather than vigorous activities may enhance the likelihood that women will be lifelong movers.

Recommendations. Testing the wave theory with empirical studies, verification of findings across a larger population, and examination of intensity levels that contribute to lifelong activity are areas that need further study.

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Chapter 1

INTRODUCTION AND REVIEW OF LITERATURE

Americans have become more sedentary (U.S. Department of Health and Human Services, 1996). At one time, farming, manual labor, and physical activity was part of everyday life. With the advances in technology, increase in motorized transportation, and rise in industry our lives have become more sedentary. During the past 50 years, there has been a decline in acute diseases and an increase in chronic or lifestyle diseases. Whereas physical activity has been found to be a health promoting behavior.

The Public Health Service of the United States Department of Health and Human Services initiated national health strategies with the publication of *Healthy people: The Surgeon General's report on health promotion and disease prevention* (1979). The 1979 Surgeon General's report focused on a national effort to educate Americans about the cardiovascular benefits of vigorous activity such as running and playing basketball. From this report, goals and objectives for the nation have been outlined promoting regular exercise and physical fitness for adults and children as a major objective (Dishman, 1991; McAuley & Courneya, 1993). In the 1980s and 1990s research was conducted demonstrating the health benefits of moderate-intensity activities, such as walking, gardening, and dancing (U.S. Department of Health and Human Services, 1996).

The Nation's public health agenda for the 1990s began with the release of *Healthy people 2000* (U.S. Department of Health and Human

Services, 1990) by Secretary Louis W. Sullivan. In this report, three broad goals to be accomplished by the year 2000 for national health promotion and disease prevention were outlined. The goals were: to increase the span of healthy life for Americans, to reduce health disparities among Americans, and to achieve access to preventive services for all Americans. From these three goals, 22 priority areas were outlined and 300 measurable objectives were established (McGinnis, 1992).

Of the 22 priority areas in *Healthy people 2000*, the physical activity category is the first priority area in the national health promotion, disease prevention agenda (McGinnis, 1992). Dr. William Foege, former director of the Centers for Disease Control, suggests that "physical activity may provide the shortcut we in public health have been seeking for the control of chronic disease, much like immunization has facilitated progress against infectious diseases" (McGinnis, 1992, p. 196).

Most recently, the 1996 Surgeon General's report on physical activity was released identifying several key factors of physical activity (Centers for Disease Control and Prevention, in press; Jones, Franks, Manson, Hoffman-Goetz, & Otis, 1998). The first key factor is that men, women, and children of all ages benefit from moderate physical activity, especially daily activity. The moderate amount of physical activity can be achieved in a variety of ways. The second message is that clearly, physical activity need not be strenuous to achieve health benefits. The third message is that people who are already physically active will benefit even more by increasing the amount (duration, frequency, or intensity) of physical activity (Centers for Disease

Control and Prevention, in press; Jones et al., 1998). In the most recent Surgeon General's report (Centers for Disease Control and Prevention, in press), the focus has been on encouraging moderate activity rather than vigorous activity.

Benefits of Physical Activity

One of the reasons why the promotion of physical activity is considered a major objective for the nation is because the benefits of physical activity have been documented. Researchers and writers of the Surgeon General's report (U.S. Department of Health and Human Services, 1996) spent years researching and reviewing research conducted to determine if scientific evidence was sufficient to support firm conclusions about the role of physical activity in preventing disease (Jones et al., 1998). The main conclusion in the Surgeon General's report is that most Americans can improve their health and quality of life by increasing physical activity (Jones et al., 1998).

Participating in physical activities has been associated with enhancing one's physical and mental health (Dishman, 1988; Dubbert & Martin, 1988; King et al., 1992; Thirlaway & Benton, 1992). It has been suggested that regular physical exercise can help to reduce hypertension, diabetes, depression, osteoporosis, and colon cancer (Dubbert & Martin, 1988; Jones et al., 1998; U. S. Department of Health and Human Services, 1990) and stress (McAuley & Rudolph, 1995; O'Brien & Vertinsky, 1991). Although physical activity has been associated with reducing health risks, the primary benefit of regular physical activity is protection against coronary heart disease (Centers for Disease

Control and Prevention & American College of Sports Medicine, 1993; Jones et al., 1998).

A sedentary lifestyle is considered a primary risk factor for coronary artery disease (U. S. Department of Health and Human Services, 1990). In addition, up to 50% of aging decline may be attributed to a sedentary lifestyle which contributes to the functional loss of muscle and bone tissue (O'Brien & Vertinsky, 1991). An active lifestyle does play an important role in maintaining one's mobility and physical independence. It increases strength in older people, improving mobility and gait which are important in preventing falls (Jones et al., 1998; O'Brien & Vertinsky, 1991). Blair, Kohl and Gordon (1992) conclude that it is time to recognize that low levels of activity or fitness are major risk factors for coronary heart disease and all-cause mortality and the same emphasis on intervention programs to improve fitness levels should be given as do hypertension, hypercholesterolemia, and cigarette smoking. As the health care costs continue to rise in the United States, the need would seem apparent to address physical activity and look for ways to increase participation rates.

It has been suggested that physical activity is associated with mental health. It has been reported by Jones et al. (1998) that physical activity improves mental health by reducing symptoms of anxiety and depression and increases feelings of well-being. McAuley and Rudolph (1995) reviewed 38 studies and found the majority of the studies reported positive associations between physical activity and psychological well-being. Thirlaway and Benton (1992) found that it was physical activity rather than cardiovascular fitness as the factor associated with better mental health and mood. Thirlaway and Benton

(1992) concluded that the emphasis needs to be on performing physical activity rather than on improving fitness levels.

The perceived benefits of exercise participation for individuals may contribute to physical activity. The top three benefits of exercise participation for women between the ages of 20-49 were "improve/maintain overall fitness, feel better physically and improve/maintain cardiovascular fitness" (Verhoef & Love, 1994).

In a study examining motivation to be physically active in a work setting, differences in the expectations about the benefits of physical activity differed between the active and inactive women (Jaffee, Mahler Lutter, & Wu, 1996). The majority of active women (mean age of sample 42 years) expected to be in better physical shape, and lose or maintain weight compared to half of the inactive women surveyed. More of the active than inactive women felt that physical activity was fun or enjoyable. Sixty-six percent (66.7%) of the women in the active group expected to enjoy physical activity, compared to 30.8% of inactive women. Many of the active women (37.5%) expected no negative outcomes from physical activity. In contrast, none of the inactive women felt that way. The inactive women expected to have less time for work and other activities. The research data did not confirm that expectation. Physically active women averaged more work hours per week than the inactive women (Jaffee et al., 1996).

The Melpomene Institute for Women's Health Research (Lutter et al., 1998) has studied women's motivating factors for engaging in physical activity. In a 1990 study of 672 women, the participants described the following benefits of being active: physical (50%), mental (40%), "It just feels good" (38%), and positive image (18%).

Despite the fact that information regarding the benefits of physical activity is well documented and available, Americans are becoming more and more sedentary. According to the 1996 Surgeon General's Report on Physical Activity and Health more that 60% of adults do not achieve the recommended amount of regular physical activity (U.S. Department of Health and Human Services, 1996). In fact, 25% of all adults are not active at all. Of special concern is that inactivity increases with age and is more common among women than men (U.S. Department of Health and Human Services, 1996).

Realizing that the promotion of regular physical activity is an important objective for the nation and that it has been documented that females are more inactive that males, it is important that the issue of women's physical activity be examined. Focusing on research that addresses physical activity and women is important for several reasons: there is a lack of research on females and physical activity, there are differences in health risks for females and males, females are living longer than males, and there is a higher percentage of older women than men (National Institutes of Health, 1992).

Women and Physical Activity

Women as a group have been an under-researched group (Haskell, 1992; King et al., 1992; Marcus, Pinto, Simkin, Audrain, & Taylor, 1994; McGinnis, 1992; Verhoef & Love, 1994; Wilcox & Storandt, 1996). Most of the research has been conducted with healthy, young and middle-aged white men, therefore there is a need for further basic research with postmenopausal women (King et al., 1992; Lee, 1991). In research conducted on the subject of women and exercise a small number of studies

have examined middle-aged and older women involved in low levels of exercise involvement over a long period of time (Lee, 1991).

Studies by Mayo (1990, 1992) explored lifelong patterns of physical activity, processes of managing physical activity, and the relationship between physical activity, body size, and health among black women. In these studies, Mayo interviewed both sedentary and physical active black women between 18-55 years of age probing for information on current and past physical activity practices, and the process of managing physical activity. Mayo found that physical activity practices were shaped by early family experiences and later peer group activities. Childhood physical activity was fostered by parents who were active or encouraged play. Adult patterns of physical activity were generally consistent with established childhood patterns.

According to Wilcox and Storandt (1996) very little is known about how women in unstructured exercise programs think about exercise. If we are to meet the important public health challenge of increasing the number of physical active women, additional research is needed especially looking at women who have been involved in structured and unstructured programs over a long period of time rather than at just one particular time in their life. Gaining information from women who have been physically active throughout their lives may provide insights in the history of exercise behavior.

Longevity

Focusing on the health of older women is important due to the facts outlining longevity patterns for women. It has been documented that women are living longer than ever before (Van Nostrand, Ferner, &

Suzman, 1993) and are out-living their male counterparts (Lane, Macera, Croft, & Meyer, 1996). According to the 1990 U.S. Census, people ages > 65 years make up 12.5% (31 million) of the total population (Lane et al., 1996). This percentage represents a threefold increase since the turn of the century (Van Nostrand et al., 1993). Not only is there an increase in the number of individuals living longer, females have been shown to make up 49.5% of the population over the age of 65 in 1900 and 59.7% in 1990 (Lane et al., 1996). If this trend continues as expected, there will be 69 men for every 100 woman at age 65 in the year 2020 (Lane et al., 1996). As women age, health concerns such as osteoporosis and cardiovascular disease increases as well as the medical costs to treat these diseases (National Institutes of Health, 1992). Coronary Artery Disease (CAD) is the number one cause of death for Americans and the risk for CAD for women increases after menopause (National Institutes of Health, 1992).

Research investigating women's health issues is warranted because: women have the highest sedentary lifestyle (U.S. Department of Health and Human Services, 1996); women are living longer (Lane et al., 1996); activity for women has shown to reduce the risk of cardiovascular disease, osteoporosis, diabetes, and hypertension (Jones et al., 1998; U. S. Department of Health and Human Services, 1990); and there has been minimal research focusing on females (Haskell et al., 1992; Marcus et al., 1994). Leading researchers in the field of physical activity and women's health attending the National Leadership Conference on Physical Activity and Women's Health in Washington, D.C., February 1997, further outlined the importance of researching women's health issues, concluding that "learning how to help women become more physically active and

sustain physical activity throughout life should be our highest priority" (Jones et al., 1998, p. 76).

Exercise Adherence

In addition to the lower percentage of individuals reported to be engaged in exercise, sustaining adherence to exercise regimens once they have been initiated is a problem (McAuley, 1992; McAuley, Courneya, Rudolph, & Lox, 1994). A dropout rate of 50% in exercise programs during the first six months of involvement has been reported by Dishman (1982). According to Pollock (1988), the largest percentage of dropout in exercise programs occurs during the first 12 weeks.

Given the facts that the U.S. Department of Health and Human Services has outlined physical activity and fitness as a top priority for the nation, that a low percentage of individuals engage in physical activity, and that research has indicated adherence to exercise regimens to be a challenge, much attention has been given to understanding exercise behavior. Exercise has been described by McAuley and Courneya (1993) as a complex behavior which is apparently difficult for many individuals to change. According to McAuley, Lox, and Duncan (1993) the contemporary perspective of exercise is that it is a complex and dynamic process in which individuals move through various stages of participation and a variety of factors play different roles at various stages.

Exercise Behavior

One theory that has tried to explain exercise behavior is Bandura's self-efficacy theory. In this model, behavior, environmental

influences, cognitive, and physiological factors all operate interactively as determinants of each other (Bandura, 1986, 1989; McAuley & Courneya, 1993). According to O'Leary (1985, p. 437) "the theory postulates that people's perception of their capabilities affect how they behave, their self of motivation, their thought patterns and their emotional reactions in taxing times." Rodgers and Brawley (1993) describe self-efficacy as an individual's expectation that they will be able to perform specific components of various activities. Broadly defined, self-efficacy cognitions are related to one's belief and convictions that they are capable of being successful in the activity (McAuley, 1992). According to McAuley, (1992, p. 67), "the *belief* that one is capable of successfully adopting and maintaining a regular exercise regimen may be particularly important." It is not the actual skills that an individual has but rather the individual's perception of what they can or can not do with those skills (Bandura, 1986).

Expectations of self-efficacy are gathered from four sources of information: social modeling, social persuasion, physiological states and mastery accomplishments (McAuley & Courneya, 1993). Mastery accomplishments are the most dependable and influential sources of efficacy information (McAuley & Courneya, 1993). In a study conducted by McAuley and Jacobson (1991) sedentary females who attended more exercise classes rated their experiences more positively, felt they achieved their exercise goals, and perceived themselves as more successful than poor attenders. Past accomplishments strongly influence self-efficacy (Garcia & King, 1991; Sallis et al., 1989).

The Natural History of Exercise

Two long-term studies by Sallis et al. (1986, 1989) facilitate the understanding of the natural history of exercise behavior (McAuley & Courneya, 1993). According to (McAuley, Lox, & Duncan, 1993) exercise behavior is seen as complex and dynamic with individuals moving through various stages of exercise behavior. (Figure 1 displays a diagram of the four major phases of the natural history of exercise (Sallis & Hovell, 1990, p. 309).

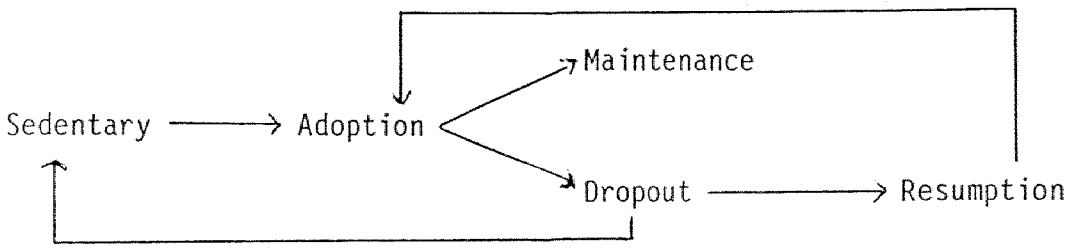

Figure 1. Four major phases of the natural history of exercise.

This model on exercise behavior illustrates that there are four major phases of exercise behavior and three transition periods between phases. This model is used for adults at a particular period of time in their life. Because the vast majority of adults are currently sedentary, the model begins at the sedentary state and assumes sedentary behavior as the baseline state (Sallis & Hovell, 1990). In reality, individuals will be distributed across all stages of the model at any given time.

Using a model to predict and explain exercise behavior that assumes sedentary behavior as the baseline state does not apply to everyone. There are some individuals, although the minority, that have been physically active their entire lives. By exploring contributors to sustained physically active lifestyles in those individuals who have

been physically active their entire lives, the model of the natural history of exercise could be expanded to include those individuals and provide new insights into exercise behavior.

Sedentary to Adoption. The first transition is from being a nonexercisor (sedentary) to being an exerciser (adoption). According to Sallis and Hovell (1990) the determinants of adoption of exercise have seldom been studied. Given that less than 10% of the population exercises enough to improve cardiorespiratory fitness, this transition point is important (U.S. Department of Health and Human Services, 1990).

Adoption to Dropout or Maintenance. Most of the research on exercise adherence has focused on this stage. Due to the high dropout rate and the low numbers of people actually exercising, this is an important issue.

Dropout to Resumption. This transition has almost been ignored in the research. Many people who dropout of exercise regimens begin again. What is occurring during this time? It may be important to focus on how interventions can reduce the time element between dropout and resumption of exercise.

Self-efficacy in Stages of Exercise

Marcus, Selby, Niaura, and Rossi (1992) examined self-efficacy and the stages of exercise behavior change. Two different scales were developed to measure stages of change for exercise behavior. In this sample of 1,063 mostly Caucasian, blue collar employed males, results suggested that scores on the self-efficacy items significantly differentiated employees at most stages of exercise behavior change.

Results indicated that employees who had not begun to exercise had little confidence in their ability to exercise compared with those who exercise on a regular basis. It appears that individuals at various stages of exercise behavior exhibit different degrees of exercise specific self-efficacy (Marcus et al., 1992). In a self-reported questionnaire study conducted by Marcus et al. (1994) exercise behavior among employed women were examined. It was found that those in the maintenance stage scored the highest on the self-efficacy scale. Women who expressed a high level of confidence of engaging in exercise even when they were tired or had little time, had high self-efficacy scores for exercise. These findings are in agreement with McAuley and Courneya (1993), Sallis et al. (1986, 1989), and McAuley (1992) in regards to the natural history of exercise behavior and the dynamic and complex nature of exercise behavior.

McAuley et al. (1994) found self-efficacy to be a significant predictor of exercise behavior in a 5-month long walking program in the early and middle stages of the exercise program but not during the last month. It is suggested that early and middle stages of an exercise program are where the initial difficulties associated with maintaining an exercise regimen are most critical (McAuley et al., 1994). McAuley (1992) has argued that as individuals adapt physiologically and psychologically to the demands of exercise participation, and as exercise becomes part of one's daily schedule, the role of efficacy cognitions in the prediction of exercise behavior may not be as critical. Exercise participation becomes routine and more easily engaged in behavior.

Adherence Research and Gender Differences

Only a few studies have examined possible differences in self-efficacy for exercise behavior between males and females. McAuley and Jacobson (1991), who used a research design where selection was based on stratified sampling restrictions in which equal numbers of males and females from four different age cohorts were examined, found that females who had shown initially lower self-perceptions than males, made dramatic increases in efficacy during the exercise program. Females continued to show a linear increase in efficacy perceptions from the beginning of the program continuing through the post program physiological testing (McAuley & Jacobson, 1991).

In a 20-week exercise program study by McAuley et al. (1994) where the subjects were selected for participation using stratified sampling restrictions, males had greater efficacy expectations than females for the first month of the program. In subsequent analyses, gender was not significant after the initial efficacy at Month 1. McAuley and Courneya (1993) state that attention to gender differences with respect to exercise behavior and self-efficacy has basically been ignored in the literature.

Differences in Exercise Dropouts Compared to Maintainers

No research reported to date has focused on lifelong movers, women who have been physically active their entire lives. Most of the research has examined differences in groups of individuals after attendance in an exercise program. Duncan, McAuley, Stoolmiller, and Duncan (1993) found that higher levels of efficacy imply higher attendance in a five-month organized aerobic program that met for three times a week. Sallis et al.

(1986) reported a difference in the dropout rate for individuals engaged in moderate compared to vigorous activities. For vigorous activity, the dropout rate for both male and females was 50%. This rate is similar to data reported by Dishman (1982). For moderate activity, the dropout rate was 25-35%. Sallis et al. (1986) reported that in all age and gender categories, maintenance rates for moderate activity was substantially higher for those in vigorous exercise activities. In a one-year study examining long-term adherence to aerobic exercise conducted by Garcia and King (1991), self-efficacy rather than self-motivation was found to be significantly associated with exercise adherence at both six months and one year. In subsidiary analysis data, McAuley et al. (1994) compared dropouts (average of one session attended per week) of a five-month walking program and maintainers at various stages of the exercise process and found that dropouts were significantly less efficacious than maintainers.

Barriers to Physical Activity

Plentiful research has been conducted identifying perceived barriers for physical activity. Time, weather, lack of support networks, facilities, lack of motivation, and physical limitations have been identified as barriers (Jaffee et al., 1996; O'Brien & Vertinsky, 1991; O'Neill & Reid, 1991; Verhoef & Love, 1994; Whetstone & Reid, 1991). The most frequently given reason for not exercising more is lack of time (Blair, Kohl, & Gordon, 1992; Jaffee et al., 1996; Verhoef & Love, 1994).

Which factors are perceived to be barriers to exercise differ depends on age, if the individual is physically active or not, and

exercise facilities. O'Neill and Reid (1991) found that older subjects in their sample of adults over 55 years of age listed more barriers than the younger subjects. The older adults did not perceive a need for physical activity and thought they were getting enough activity in their daily routine. O'Neill and Reid (1991) found a difference in activity levels between males and females. The females rated their activity level lower than males.

Sallis et al. (1989) examined the determinants of self-reported vigorous exercise in a community sample of 2,053 respondents. The researchers found that the lack of interest in exercise, lack of enjoyment from exercise, lack of self-discipline, lack of social support, knowledge, and skills were barriers to exercise. They also reported that for older women, friend support was a significant factor for vigorous exercise.

A survey conducted by Lee (1993) of Australian women between 50 and 64 years of age revealed that those who were contemplating exercise perceived different barriers to exercise than those who actually exercised. In comparison to exercisers, individuals who were contemplating exercise were older, had lower exercise knowledge, had lower perceived family support to be active, expected fewer psychological benefits from exercise, and rated exercise as less important than avoiding smoking. Individuals contemplating exercise stated that their family would definitely not pitch in and help so that they could find time for exercise. Reluctance to go out alone and use public changing facilities were potential barriers addressed by one-third of all 286 respondents. In addition, more than one-half of the respondents believed that gyms and fitness centers were designed for

younger people and indicated that they would not like to use such facilities (Lee, 1993).

Motherhood itself was found to be a barrier to exercise. In research conducted by Verhoef and Love (1994) a sample of over 1,000 women ages 20-49 years of age were selected to examine exercise participation, perceived barriers to exercise and perceived benefits of exercise. Motherhood itself, rather than the number and ages of children, was a barrier to exercise participation. The mothers were less active than the women without children in terms of the intensity, frequency, and duration of exercise in the past week as well as exercise pattern over the last six months. When compared to women without children, women with children indicated common barriers but the barriers were experienced to a higher degree. Similar with findings from Blair et al. (1992), the most important barrier to exercise was lack of time as a result of family obligations for women with children. For women without children, the biggest barrier was lack of self-discipline (Verhoef & Love, 1994).

Significance of the Study

What we do know is that increasing physical activity is a top priority for the nation. The lack of physical activity is considered a primary risk factor for coronary artery disease which is the number one cause of death for postmenopausal women. It is also documented that most people, especially women, become more inactive as they age. Even though the benefits for physical activity as well as the barriers to sustaining and adhering to physical activity have been identified and examined, adherence to physical activity is still a concern.

The natural history of exercise behavior has been described as complex and dynamic. A model by Sallis and Hovell (1990) illustrating the four phases of the natural history of exercise is presented to identify determinants of exercise behavior. The first phase of the model is the transition from being a nonexerciser (sedentary) to being an exerciser (adoption). Using this model assumes that individuals begin as sedentary beings. What about individuals who have always been physically active through childhood, adolescence, and adulthood? Where do these individuals fit into the model? Perhaps this model needs to be expanded to include those who have been physically active throughout their lives.

It is also clear from the literature that research examining women involved in physical activity, especially lifelong physical activity, has been minimal at best. There are women who have maintained or increased their activity level and incorporated physical activity into their lives instead of decreasing their activity level as they aged. Who are these women and what can their life stories teach us about physical activity, adherence, and overcoming barriers to remain physical active through our lives? What are their lifelong physical activity patterns? No research to date has focused specifically on women who have been physically active their entire lives. Most of the research has examined differences in groups of individuals after attendance in an exercise program. A study examining life stories of women who have continued to be physically active throughout their lives provides insights about physical activity, motivation, and adherence that maybe useful in promoting long-term changes in exercise behavior.

Problem Statement

To date, we know little about what makes people lifelong physically active. We have an understanding of the benefits of physical activity as well as the barriers but we haven't examined the life stories of lifelong physical movers, especially females.

Purpose

The purpose of this study was to identify and understand the contributors to sustained physical activity and the role physical activity has played in the lives of lifelong physically active women between 58-72 years of age.

Assumptions

The researcher's perspective was guided by the following assumptions:

1. The study participants provided information to the best of their memory.
2. Engaging in physical activity is influenced by multiple factors.

Definition of Terms

For purposes of this study, the following terms were defined.

Physical activity. Bodily movement produced by contraction of skeletal muscles that increases energy expenditure above a basal level. It includes a broad range of occupational, leisure-time, and routine daily activities (Centers for Disease Control and Prevention, in press).

Moderate level of physical activity. A moderate amount of physical activity is roughly equivalent to physical activity that uses approximately 150 Calories (kcal) of energy per day, or 1,000 Calories per week. Some activities can be performed at various intensities; the suggested durations correspond to expected intensity of effort (U.S. Department of Health and Human Services, 1996).

Frequency of moderate physical activity. A minimum of five days per week (U.S. Department of Health and Human Services, 1996).

Duration of moderate physical activity. A minimum of a total of 30 minutes a day (U.S. Department of Health and Human Services, 1996).

Physical fitness. Is a measure of a person's ability to perform physical activities that require endurance, strength, or flexibility. It is something you acquire, a characteristic or an attribute one can achieve by being physically active (Centers for Disease Control and Prevention, in press).

Exercise. Is physical activity that is planned, structured, and repetitive bodily movement done to improve or maintain one or more of the components of physical fitness (Caspersen, Powell, & Christenson, 1985; Centers for Disease Control and Prevention, in press).

Sedentary lifestyle. Those engaging in activity less than 20 minutes per session, less than three times per week (Heath, G., personal communication, March 24, 1998).

Research Questions

In a population of lifelong physically active women, what are the self-reported contributors to lifelong physical activity? Further, for lifelong physically active women, (a) what are the motivating factors for sustaining physical activity? (b) what are their childhood experiences? (c) what factors have been barriers to sustaining physical activity? (d) what have been their support systems?

Chapter 2

METHODOLOGY

We don't know much about what makes people lifelong physical exercisers. We have an understanding of the benefits of physical activity as well as the barriers but we haven't examined the life stories of lifelong physical movers, especially females.

Design

I used multi-case study methodology to elicit the perspective of informants of sustained physical activity (Bogdan & Biklen, 1998). A case study involves an investigator who makes a detailed examination of a single subject or group or phenomenon (Gall, Borg, & Gall, 1996). I employed multi-case methodology to generate rich subjective data that aided in the development of theory (Gall et al., 1996). Studying multiple cases was done in order to test the generalizability of themes and patterns (Gall et al., 1996). Multi-case study design provided insights and illuminated meanings of experiences (Merriam, 1988). This qualitative inquiry attempted to understand meaning and behavior from the perspective of the participant (Lincoln & Guba, 1985; Patton, 1987).

Life histories, a particular kind of case study, was conducted in this study. Life histories are first-person narratives that the researcher collects by conducting in-depth interviews of individuals (Gall et al., 1996). It is the "study of the life experiences of individuals from the perspective of how these individuals interpret and understand the world around them" (Gall et al., 1996, p. 604). In-depth

subjective data about physical activity, the contributors to sustained physical activity and it's meaning were gathered, coded, and categorized into central themes (Strauss, 1987). In addition to the data derived from the interviews, data and insights were obtained through the study participants activity journal which was kept from the first interview through the second interview, and memos I recorded.

This study focused on two in-depth interviews of eight women, with an intention to determine answers to the following questions:

1. In a population of lifelong physically active women, what are the self-reported contributors to lifelong physical activity?
2. Further, for lifelong physically active women,
    a. what are the motivating factors for sustaining physical activity?
    b. what are their early childhood experiences?
    c. what factors have been barriers to sustaining physical activity?
    d. what have been their support systems?

The Setting: Iowa

The women participating in this study lived in central and northeast Iowa. The interviews took place in the winter between the months of December and February.

Sampling Criteria

This study was conducted using qualitative multi-case study methodology (Bogdan & Biklen, 1998). Nonprobability sampling was utilized for sample selection (Merriam, 1988). Purposive sampling, the

most common form of nonprobability sampling was used in this study (Merriam, 1988; Patten, 1987). I chose particular subjects to include because they were believed to facilitate the expansion of the developing theory (Bogdan & Biklen, 1998, p. 65). Sampling was based on demographic information not statistical considerations. The purpose was to maximize information, not to bring forth generalization from sample to population (Lincoln & Guba, 1985). Sampling and interviewing terminated when the amount of new information provided by participants compared to the energy required to conduct the research reached the point of diminishing returns (Lincoln & Guba, 1985). According to Bogdan and Biklen (1982) there comes a time when information from the data collection becomes redundant, data saturation, and the data collection process can be terminated. The sample was expanded until redundancy, with respect to information, was reached (Lincoln & Guba, 1985). According to Gall et al. (1996) this is theoretical saturation.

Sampling Process

I used a combination of snowball (Bogdan & Biklen, 1982; Lincoln & Guba, 1985) and theoretical (Merriam, 1988; Strauss, 1987) non-probability sampling techniques to initiate contact with informants. The system for selection of the sample began with one participant from an unpublished pilot study I conducted. A snowball sampling technique (Bogdan & Biklen, 1982; Lincoln & Guba, 1985) was employed initially to contact potential participants for the study. In this method of selection, the first person interviewed was asked to recommend three friends or acquaintances whose characteristics fit those required by the research. Neither the participant from the pilot study nor the second

participant interviewed could recommend other women who fit the categories outlined, consequently, I was not referred to other potential participants.

Understanding that there was a need for an additional system for sample selection besides the snowball sampling technique, I used theoretical sampling (Merriam, 1988; Strauss, 1987). Theoretical sampling means "whereby the analyst decides on analytic grounds what data to collect next and where to find them" (Strauss, 1987, p. 38). I sought samples of population, activities, and events that had been guided by my emerging (although primitive) theory (Strauss, 1987). In addition, theoretical sampling was used to select participants who, by possessing characteristic different than previous participants such as attending a different structured activity class or structured vs. nonstructured physical activity, provided new information about the phenomenon under study (Mayo, 1990).

In utilizing the theoretical sampling system for selection of informants, I obtained permission from the owner of a health club to talk with members of an aqua aerobics class. This class was selected because the owner of the health club had firsthand knowledge that this class had a large percentage of women who fit the age criteria. From this contact, one potential informant granted the researcher permission to contact her and arrange for an interview. After conducting this interview, I employed the snowball sampling technique but the informant was unable to refer any additional potential informants. Due to the difficulty of the informants knowing others who were physically active and who could be potential study participants, theoretical sampling was employed.

Informants were obtained from six different sources. The sources included, an individual from a pilot study I conducted, two health clubs, one hospital fitness center, a senior citizen center, and a university wellness center. I went to the different sources, received permission from either the owner of the health club, the instructor of the fitness class, or the senior citizen center director to speak with participants attending classes. I was introduced to the class and the nature of the study was outlined. I described the following criteria for sample selection:

1. High school graduates with no post high school educational experience
2. Caucasian women between 58 - 72 years of age
3. Married, widowed, separated, or divorced.
4. Raised one or more children
5. Participated in either structured physical activity, unstructured physical activity or both.

All attendees who fit the criteria were invited to stay after class and complete the questionnaire to document their possible criteria for selection (Appendix A). If selection criteria were met from their completed questionnaire, from a seven-day physical activity recall, and the participant granted permission to continue with the research process, they were given an Informed Consent Form (Appendix B) to read and sign. An interview was scheduled at that time.

Sociodemographic Data

The following sociodemographic data were relevant to this study of sustained physical activity:

1. Age
2. Education
3. Marital status
4. Number of children
5. Number of grandchildren
6. Number of siblings

To maintain minimal variation in the sample, logical controlled demographics were utilized.

The Sample

All the participants met the criteria. The general profile of the participants was that of women in their adult postmenopausal years who were hard workers, high school educated, and stayed home most of the years before their children went to school, and many of the years their children were in school. The mean age was of the group was 68.25 years (*SD* = 4.46) with an age range of 58-72. All had been married. Two (25%) of the eight were widowed. One (12.5%) was divorced. Five (62.5%) of the eight were currently married. One of the women who was currently married had been a widow for three years before remarrying when her children were young. Seven of the eight women were officially retired although one participant cleaned several homes each week. All eight women had worked outside of the home to some degree varying in duration from a few years part-time to over 20 years full-time.

All eight of the women were mothers with the number of children they raised ranging from 2 to 5. All eight women were grandmothers with a minimum number of two grandchildren. All eight women were raised with

other siblings with the range from 2 to 13 children in the family. The mean number of children in their family growing up was 5.5.

Choices of Physical Activities

Although seven of the eight women were involved in scheduled, organized activities located in a facility, they also were involved in spontaneous physical activity on a daily basis. Attending a fitness class appeared to help them be physically active but they were active in their life without a structured class.

Of the seven women scheduled in a physical activity, six of them belonged to a fitness class. One belonged to a health club and attended a class for older adults, one attended a class which emphasized flexibility and range of motion through the local hospital, two attended a fitness class for older adults through the city's senior citizen's center, and one belonged to a health club and attended an aqua aerobics class. Another woman did not belong to a health facility but was in a bowling league and played every week for years. The one participant who did not engage in scheduled activities had attended a scheduled class for six weeks approximately 20 years earlier in her life. She attended the class only after she had injured her shoulder and was attending for rehabilitation.

Postmenopausal women between 58-72 years of age are in a high risk category for osteoporosis and coronary heart disease (Lee, 1991) and have not been researched to a great extent in the literature. To eliminate covert difference as a variation, the range in ages of women interviewed was not greater than 15 years, and the education level was the same for all participants.

The educational level demographic variable was controlled by including only women who had no post high school educational experience. This minimized and held constant the variations they had experienced either attending college or a technical training program. For example, women who majored in physical education in college, were active in extramurals, attended nursing school, or were college cheerleaders were not included in this research.

Even though physical activity is more common among more affluent individuals than less affluent (U.S. Department of Health and Human Service, 1996) income level is not a variable that was controlled for in this study because it varies throughout the life span and was difficult to assess for women 58-72 years of age.

Only Caucasian women were included in this research because of documented racial differences in health status and practices. Physical inactivity is more common among African Americans and Hispanic adults than whites (U.S. Department of Health and Human Service, 1996). According to Mayo (1992) African American women report less leisure time physical activity than any other population in the United States.

Women without children and mothers have reported different levels of exercise (Verhoef & Love, 1994). Verhoef and Love found that motherhood itself is a barrier to exercising and that the number and ages of children are not. Only women who had raised children were included in this study.

Because this research examined lifelong physical activity characteristics, women who participated in either or both structured physical activity (exercise classes at a specific time and place) and

unstructured physical activity (walking, swimming on one's own) throughout their life were considered.

Criteria for Selection

Individuals selected to be interviewed for the study fit the following criteria:

1. The subjects were Caucasian women between 58-72 years of age.
2. They raised one or more children.
3. The subjects were or had been married.
4. The subjects completed high school with no post high school educational experiences such as college or technical training programs.
5. The subjects perceived themselves to be physical activity and stated that they have been physical active their entire life.
6. Previous and current activities of the subjects included one or both of structured physical activity (i.e. going to an exercise class at a specific time and day), and non-structured activity (i.e. walking on their own).
7. Subjects defined and described what being physically active was in their own words. From their past week log of activity and their description of physical activity it was determined if their past activity level met either criteria #1 or criteria #2. The current weekly activity met at least one of the two criterion for all study participants:

Criteria #1

Guidelines from the 1996 Report of the Surgeon General: for moderate-intensity physical activity, 30 minutes or more of

moderate-intensity physical activity on all, or most days of the week. See chart #1 for examples of moderate-intensity physical activity.

Criteria #2

Guidelines from the American College of Sports Medicine (1978): three to five days of training per week at a level of 60% to 90% of maximal heart rate (MHR), or 50% to 75% of maximum oxygen capacity (VO2 max) and a duration of 15 to 60 minutes of continuous activity.

Data Collection

Interviews

Data collection was primarily through the employment of a semi-structured interview guide where some deviation from the interview guide was permitted (Patton, 1987). A number of basic questions were worded precisely in a predetermined manner but at the same time I had flexibility in probing and exploring certain subjects in greater depths as indicated (Patton, 1987). This is a combination of the interview guide approach and the standardized open-ended interview (Patton, 1987). This method provided the ability to get comparable data across the participants involved in the research without restricting the interview by limiting the research questions before the interview was to take place (Bogdan & Biklen, 1982; Patton, 1987). Questions were asked of the participants with interviews ranging from 20 to 60 minutes in length. (Bogdan & Biklen, 1982). Participants were asked to keep a journal of their physical activity and reflections of that activity to help verify their activity and provide insights into their behaviors and feelings.

The research design and primary method of data collection consisted of in-depth semi-structured interviews conducted with the participants (Bogdan & Biklen, 1998; Patton, 1980; Spradley, 1979). To gain rich, thick descriptive data, each participant was interviewed twice (Merriam, 1988). Intensive interviews were used to explore the contributors to sustained physical activity and the role physical activity had played in the lives of eight lifelong physically active women. Data were collected over a two-month period using open-ended questions. In-depth subjective data about physical activity, the contributors to sustained physical activity and it's meaning where gathered, coded, and categorized into central themes (Strauss, 1987).

Immediately after the first interview I made memos of my perceptions of the interview, noting any pauses, facial expressions, and general reaction of the participant. After the interview was conducted and transcribed, I read through the interview several times and openly coded the data. Questions emerged through data collected individually from each participant, and my memos. I made notes of additional questions to ask the participant for clarification and for additional probing in order to gain rich, thick descriptive data. Each participant was interviewed for the second time between three and five weeks after their first interview.

Data obtained from the second interview were reviewed, coded, and integrated into the data collected from the first interview. From this second analysis, I wrote down observations and questions from the data. From this process of data analysis, themes and categories began to emerge which were used in theory development. The initial interview protocol is included in Appendix D.

Although the interviews were the primary source of data collection, additional data were obtained through the participants past seven-day activity log, their physical activity journal which was kept between the first and second interview, and my memos. These materials were used as supplemental means of substantiating data derived from the interviews and a means to formulate questions for the second interview.

Recording the Interview

Both note taking and tape recording were the methods used for preserving the information collected in the interview. Participants had the option of having the interview done in their home or in a neutral setting such as at a community site, i.e., library, church, or exercise facility. Of the 16 interviews, all but 5 were conducted in the informant's home. After the first interview, the tape recording of the interview was transcribed. I read the transcript, reviewed it with the tape recording for accuracy, and made needed changes.

Developing Coding Categories

First the data was organized by content and secondly by research questions. Thus, the data were organized into manageable units of analysis. As I read through the data, certain words, phrases, patterns of behaviors, activities, ways of thinking, and events stood out (Bogdan & Biklen, 1998, p. 171). A coding system was developed which involved searching through the data for units of information (Bogan & Biklen, 1998). Words, phrases, units of information representing these topics were written down beside the line in the transcribed document. These words, phrases, and units of information were coding categories.

I read through the transcribed interview several times, coded the data and checked the interview for units of information. By reading and coding the interviews, categories or units of information from the data were established. Those units were made into themes developed around the contributors and factors of sustained physical activity for physically active women.

In addition to searching through the data, a preassigned coding system was employed (Bogan & Biklen, 1998). This was done to generate data from all participants concerning specific topics. Some of the words and phrases answered specific research questions. For example, the participants were asked, "what have been barriers in regards to physical activity?" The words and phrases provided by the participant were placed in a category of barriers. Findings from the pilot study provided a foundation for the development of research questions and possible coding categories.

All participants received a copy of the transcription and granted permission to use the data in the research study. The tape recordings of the interviews will be erased five years after the completion of the research.

Data Analysis and Interpretation

The results of this study were determined through qualitative analysis techniques. Grounded theory approach was utilized (Strauss, 1987). The grounded theory approach asserts that meaning making and theory building should emerge directly from the immediate data (interview, journals, memos) that one has collected rather than from prior research and theory (Gall et al., 1996; Lincoln & Guba, 1985;

Strauss, 1987). The focus of analysis was not only on collecting a mass amount of data but organizing many ideas when emerged from the analysis of the data into meaning making (Strauss, 1987). A category, which is a "construct that refers to a certain type of phenomenon mentioned in the data" was derived directly from the data rather than from theories developed by other researchers (Gall et al., 1996, p. 564). Employing this methodology was appropriate for this study as it provided a larger perspective of the contributors and factors of sustained physical activity for physically active women.

A theory, according to Merriam (1988) consists of three elements: categories, properties, and hypotheses. Hypothesis are the suggested links between categories and properties (Merriam, 1988, p. 142). The construction of categories is a key element in the development of grounded theory. The two specific strategies of grounded theory I employed to enhance the construction of categories included content analysis (Strauss, 1987) and constant comparative analysis (Bogdan & Biklen, 1998; Merriam, 1988; Strauss, 1987). Methods used for analysis were chosen based on their capacity to answer the research questions and to extract data that would substantiate or refute tentative relationships and hypotheses.

Content Analysis

Transcripts were analyzed using content analysis. I read and coded the interviews and established units of information, categories, from the data. Within these units of information, coherent and important examples, patterns, and themes emerged (Patton, 1987). These categories, patterns, themes, key words, and/or phrases focused on contributors to

sustained physical activity and the role physical activity played in the lives of women (Bogdan & Biklen, 1982). An example of a unit of information that emerged from the data in this study was the participant's relationship with their father. After an interview was transcribed and coded, it became apparent that the participant's relationship with their father was a recurrent theme. The participant repeatedly provided information about her father. Knowing that the father relationship was a category for one particular participant the researcher compared this information with responses from other participants. Constantly comparing units of information.

Both an open coding system and preassigned coding system was employed. Open coding was done with the aim to produce concepts that seem to fit the data (Berg, 1998; Strauss, 1987). Preassigned coding was employed to compare topics, themes, and patterns of behavior between participants that were generated from the pilot study (Bogdan & Biklen, 1998).

Constant Comparative Analysis

Data analysis and theory development was conducted by employing the process of constant comparative analysis (Bogdan & Biklen, 1998; Merriam, 1988; Strauss, 1987). Categories, which are an element of emerging theory, were derived by constantly comparing one incident or unit of information with another (Merriam, 1988, p. 142). Using constant comparison, I clarified the meaning of each category and highlighted the distinctions between categories and decided which categories were most important to the study (Gall et al., 1996). These categories are

referred to as themes. Emerging themes from one participant were compared with emerging themes from other participants for analysis.

Trustworthiness and Validity

The criteria for rigor commonly expected with scientific inquiry was met by using Lincoln and Guba's (1985) methods for achieving trustworthiness and validity. Trustworthiness is tested by four naturalistic analogues to the traditional criteria of reliability, internal and external validity, and consists of attention to concepts such as credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985).

Credibility

Credibility is the establishment of the "truth value" of the findings. Credibility or truth value is known as internal or content validity in quantitative research. In qualitative research, triangulation is a process that is conducted that increases the probability that credible findings are produced (Lincoln & Guba, 1985). An accepted method which can lead to a fuller understanding of the phenomena being studied is utilizing different data-collection techniques such as interviewing, observations, journals, official documents, or collecting data from many subjects about the same topic. The process of triangulation I employed in this research minimized investigator bias by utilizing data obtained from multiple sources (Bogdan & Biklen 1982; Gall et al., 1996; Lincoln & Guba, 1985; Spradley, 1979). The multiple data sources included: two in-depth interviews with participants, a previous seven-day physical activity

log, a participant personal journal kept between interview sessions and memos, and my written account of experiences, ideas, breakthroughs, and problems that arose during the intensive interview process. In addition, I collected data from eight subjects about the same topic which aided in triangulation. Because the primary data-gathering instrument relied on human observation and interviewing rather than on measurement instruments the need to safeguard against investigator bias was needed (Borg & Gall, 1989; Lincoln & Guba, 1985).

Transferability

Understanding that qualitative research is limited in generalizability, transferability is appropriate (Lincoln & Guba, 1985). Transferability or applicability (the equivalent of external validity and generalizability in quantitative research) was achieved by employing two in-depth interviews for each participant in which thick, rich descriptive data emerged. Having thick, rich descriptive data assisted the reader in determining whether the concepts of themes and patterns can be transferred to another setting. Having multiple contacts with informants provided me the opportunity to collect thick, rich descriptive data, and validate data interpretations from previous interview. All of the initial interviews were transcribed and preliminarily coded before doing the second interview, which provided clarification and validation.

Dependability

Dependability addresses the need to use sufficient methods and techniques to assure that the results of the study can be trusted (Lincoln & Guba, 1985). Dependability in qualitative research is the

equivalent method of reliability and consistency in quantitative research (Lincoln & Guba, 1985). Steps taken to ensure the dependability of the interview guide included piloting the study. From the pilot study interview questions were reworded, changed, omitted, and new questions emerged. In addition, this study employed several different sources of data collection: interviews, seven-day physical activity recalls, physical activity journals, and research memos.

Confirmability

Confirmability is the ability to look at all the data sources and processes to assure that the findings are grounded in data (Lincoln & Guba, 1985). Confirmability or neutrality (the equivalent of objectivity in quantitative research) was met in two ways. First the integrity of the raw data was maintained. An audit trail which includes raw data: tape recordings, researcher memos, physical activity journals, and my working observations and hypotheses was left. Second, the journal I kept to record observations, feelings, biases, and personal experiences was separate from the data.

To enhance the evidence that the data gathering techniques and sources were appropriate and trustworthy, I piloted this study. The interview protocol and interview method was piloted with three participants one year prior to collecting data for this dissertation. In addition to the pilot study, the collected data were continually compared with previously collected data, examining for appropriateness and trustworthiness.

Summary

Conducting two interview sessions with study participants aided in safeguarding against investigator bias but also provided deeper and richer insights into the role physical activity has played in the lives of the participants by peeling back the layers of information to provide insights and clarity. The in-depth interviews probed below the surface level of conversation and obtained detail and a "holistic understanding of the interviewee's point of view" (Patton, 1987, p. 108). Interviews were the dominant strategy for data collection for gathering descriptive data in the participant's own words. The researcher developed insights on how the participants interpret some aspect of the world (Bogdan & Biklen, 1982).

Chapter 3
RESULTS

Physical Activity Histories

Participant Profiles

Mary. Mary was 71.5 years old. She was divorced after 36 years of marriage to a professional, financially successful man. She attributed her divorce to his drinking. After her divorce he died. She was raised in a financially successful home. She lived a privileged life, especially in the 1920s. Her father owned a lumber company and her mother was an artist and seamstress. They had a live-in housekeeper and a gardener. Both her parents played golf. She described her childhood as carefree, riding her bike around town without a worry. At age seven she was hit by an apple and loss the sight in one eye. Her parents handled the situation lovingly. Her grandfather and several of her uncles were optometrists so they rigged up an apparatus to strengthen the muscles in the eye. She never felt handicapped but was unable to play games that included balls. She was the middle child in a family of three children. As a family they often went to the river to go boating. Her father made a diving board for her to dive off of and encouraged her to put on a diving show for others to watch. She described her father as being gorgeous.

She married a health professional and raised three children. Most of the physical activities she and her husband were involved with were social. She belonged to the country club and the YMCA. The family took

active vacations. She golfed, walked, attended aerobic classes, and snowmobiled. She began downhill skiing with her family at age 40. Alcohol was involved with social physical activities and became a problem in the marriage. She had two grandchildren she saw on occasion. After her divorce she moved three hours away from her ex-husband and worked full time for approximately four years.

She loved the feeling and the action of moving. She didn't want to stop moving because she was afraid she might not be able to do it once she stopped. She liked to do cartwheels on the golf course and skip hand in hand with her friends. She attended clown school. She loved performing on stage.

Bertha. Bertha was 67 years old. She worked outside of the home on and off for over 30 years. At the time of the interview she had been retired from bookkeeping for five years. She was married and raised three children. All of her children were married and she had six grandchildren which she enjoyed having and playing with.

She grew up in the midwest with Scandinavian parents who enjoyed the outdoors and the winter. She had three older siblings and one younger sister. She had an older sister who was serious, never had any fun, and was the sibling who helped her mother in the house. Her family was poor but she did not know it at the time. Her mother worked hard in the home. She did not have time to play. She remembered her father ice skating but not mother. She enjoyed playing outside on her own. Although her early memories of physical activity were pleasant, she felt clumsy and disliked gym class.

She had been a walker most of her life, getting up early in the morning rain or shine to walk because it made her feel better. She liked the feeling of stretching and had her husband construct an apparatus she could hang from in the garage. She continued to do stretches for 20 minutes in the morning that where suggested to her by a physical therapist after she hurt her back. This stretching program was so much a part of her daily routine she initially forgot to mention it in her seven-day activity recall.

She had begun to attend an aqua aerobics class at a local health club with a friend. She didn't care for group activities but continued to attend this class because she enjoyed being with this friend and being in water. She found having a friend to be active with was is helpful for her but she was not dependent on others. She was primarily active for health reasons: keeping her cholesterol and weight down. She did enjoy movement and the outdoors. Her barrier to activity was sleeping in, never her family. She overcame this barrier by getting right out of bed in the morning and doing her activity: walking or floor exercises.

Marleen. Marleen was the youngest participant, 58 years old. She was the mother of five children, including one set of twins, and grandmother of two. She worked part time on and off through the years when the children were in school. She retired four years ago. She was raised in a family with a one brother, six years younger. Her father was physically active and enjoyed outdoor activities such as fishing and water-skiing. Her mother was inactive and had to be motivated by her father to do a variety of activities such as drive a car and water-ski.

The family took outdoor vacations consisting of water-skiing and fishing. Her father encouraged her to do the same things he liked to do. She felt close to her father but not her mother. Her mother loved to cook and clean and stay inside the house. She liked to be outside and moving. She felt she was more like her father.

She remembered riding her first bike at six years of age and had continued riding throughout her life. She rode in a bike ride across the state of Iowa (RAGBRAI) six times, and trips to other countries. She rode bikes with her children and continued riding her bike to run errands. She did not like to sit still and watch television. She enjoyed being physically active and being outdoors.

She enjoyed bowling in a league with other women but preferred to bike and do other activities by herself so she could have control. Her husband was not as active as she was but quietly supported her activities. She returned to ice skating at age 58 and planned on water-skiing the next summer. She was a goal setter, and did not let injuries stop her from being active.

Dolly. Dolly was a married 67-year-old women who had raised 6 children with 1 dying at age 13. She lived in the same community all her life except for the last 1 1/2 years when she moved 15 miles away into a smaller home and community. She was raised in a family with 13 children, 7 boys and 6 girls. She was the eighth child. She remembered playing softball daily in a neighborhood vacant lot. She had good memories of her family. She remembered her father and mother were hard workers. Her father was busy doing something and her mother was busy baking. She remembered how the family use to turn the radio on at night, turn the

lights out, and listen to scary stories while eating a big batch of popcorn. She believed her enjoyment of physical work and being active came from her father.

She had worked at a physically demanding job for years. In addition to her job she cared for a large garden and sold the vegetables at the family stand. After years of manual labor, her back and neck began to bother her. She sought relief from a chiropractor. She read about an exercise class that was marketed to help people with back and neck problems. She joined the class and found relief not only for her back and neck but found her whole body benefited from the program. Her physically activities involved walking and biking throughout her life. She use to walk after supper with a neighbor early in her adult life but later on found herself walking most often by herself. Her husband was quietly supportive. He was not as active as she was but walked with her occasionally.

She enjoyed playing ball with her children and enjoyed playing with her grandchildren. Her barriers included physical barriers such as leg swelling due to hormone replacement therapy.

Betsy. Betsy was a 71-year-old married woman who had lived in the same community her entire life. She had been a stay-at-home mother. She had lived in the same house for over 40 years. She raised two sons and has two grandchildren. She had one younger sister. Her parents were hard workers. She wanted to play basketball in high school but her father told her they didn't have money for that. She had to work. She could not ever please her mother. She was active all her life riding a bike or walking for transportation purposes.

She walked to the park with her two boys often. After she developed migraine headaches she increased her physical activity by attending exercise classes and riding a stationary bicycle six times a week. Being active was something she did for herself, it kept the body working better. She was sarcastic when she talked about exercise, negatively talking about it as something she needed to do. To ensure she was active she rode the stationary bike every morning as soon as she got up. She always read while she rode. If she waited to exercise later on in the day she would put it off. She felt better because she was active and was in it for life. Having a class to go to and exercising first thing in the morning where supportive factors for her. Her husband supported her but did not engage in activity with her. She did not like to sit and enjoyed keeping busy. She described herself as being independent.

Ella. Ella was a 70-year-old widow. She raised five children and one step-son. She worked full-time for 21 years and retired 7 years ago. She was involved with her children and grandchildren's lives, particularly one granddaughter.

She was raised in a extremely poor family. Her father had a 4th grade education, tried farming and other odd jobs. Her family consisted of five siblings including one sister dying at age six and two boys at birth. She had a good relationship with her parents. Her mother was wishy-washy, referred questions to her father and was not physically active. Her father was physically active, played baseball with the children and took them fishing. They walked everywhere they went because they did not have an automobile.

She found she could excel in physical activities at school and show she was as good as other people. For that reason, she liked the competition in physical education classes. She remembered the name of a physical education teacher in school.

After her husband died she was free to be more active. Her husband was her barrier. He was dependent on her and did not want her to leave him. Due to this barrier, she walked during her noon hour at work. After he died a friend encouraged her to join a walking club with her. After she joined, she and her friend took walking trips to other countries with the walking club. Recently, she walked by herself most of the time. She enjoyed physical activity and getting outside. In addition, she wanted to stay alive longer for one particular grandchild. She was very close to this grandchild and was concerned that the child wouldn't be able to deal with her death if she died now. Activity enhanced the chance she would live longer.

Martha. Martha was a 69-year-old married woman. Her first husband died when she had two small children. Three years after his death, she married again and had two boys. She had five grandchildren. She worked several different jobs and was currently cleaning several homes a week. In one job she had for nine years, she estimated she walked nine miles a day.

She was raised on a farm with hard working parents. She had one older and one younger sister. Her older sister helped her mother and she helped her father on the farm. According to Martha, she was the larger child so her father worked her like a boy. She enjoyed being with her father, they were very close. Her mother wanted her to act like a lady

but Martha did not know how to do that. She called herself a "tomboy." She wanted to play basketball in high school but her father said she had to help on the farm.

She had a big flower garden and a big vegetable garden. She attended a variety of exercise classes through out the years. Sometimes she was asked by a friend to go, some times she asked a friend to go, but most recently she went by herself. Her barriers to activity were physical, having knee surgery. She thought she was more physically active because she had grandchildren. She enjoyed playing ball with her children and grandchildren and did it frequently. It was sad for her to see her grandchildren grow up and find other things to do besides play with their grandmother. She liked being outside either walking or working in the yard. She described herself and her husband as hard working people.

Ruby. Ruby was a 72-year-old mother of three boys and has four grandchildren. Her husband of 51 years died 14 months ago. It had been an adjustment for her. She had just had back surgery two months before the interviews.

She was raised in a home that spoke both German and English. Her father owned a grocery store, her mother raised seven children and they lived in town. Her mother would play inside with the children. Her father was physically active playing on a softball team and playing horseshoes. As a family they would walk outside on cold Sunday afternoons. They were taught to enjoy themselves outdoors. She had two older sisters. The oldest sister was responsible for the store. The second older sister took care of the house. That left Ruby free to

assist in the store but not be as responsible. Neither of her older sisters enjoyed being outdoors and being as active as Ruby. As adults, the two older sisters were not as active and had weight problems. Ruby played basketball in high school and loved it. As an acknowledgment of thanks for their work in the family store, her father gave Ruby and her sisters a vacation. He gave them a car to use and money to spend for food and lodging for a vacation in the western part of the United States.

She was physically active with her children. She walked with them on their paper routes, played ball, went sledding, and rode bikes with them. She incorporated activity into her life by walking or riding her bike to complete errands. Except for having recent back surgery, she had no barriers for activity. She enjoyed moving and found it easy to work her walk into her daily schedule. She just did it. She walked with a friend sometimes but mostly by herself. Only once did she join an exercise classes for six weeks. The intent was to rehabilitate her shoulder from a bike accident. She did not want to spend the money to go to a class to exercise. Her grandchildren contributed to her desire to try cross-country skiing and rollerblading later in life. Her husband had a physically active job but did not join her in her physical activities although he supported and admired her physically abilities and activities.

Data

The participants were interviewed using a semi-structured interview guide. Some questions were preassigned to specifically evoke an answer to a question. Other interview questions were open ended and

designed to elicit descriptive data. The participant's perceptions and the themes that emerged from the data are presented in this chapter.

The Concept of Physical Activity

Physical activity was defined broadly in Chapter 1 as both activity that occurs routinely as a natural part of everyday life and exercise that is consciously planned and practiced. When asked to define what physical activity is, the women in this study described it as moving, body movement, and consisting of a hard day's work. Mary, defined physical activity as "Moving, girl. It's just moving." The participants viewed exercise as something more structured in nature, like going to a class on certain days at certain times. Mary defined exercise as:

> Sometimes that's pain and I don't go for pain much. I don't really push really hard. I'm very agile and even with the weight I have to concentrate on what I'm using--muscles--because it's easy for me just to swing the weights around and not think about muscle and I have to focus on the muscles if I'm going to get any better.

Bertha defined exercise as something "that's more physical. (long pause) With more energy. Using more strength. More energy." When Bertha described what her water aerobic class was, she said "Exercise. If it's a purpose, it is exercise."

Themes

Six themes emerged supported by subthemes from analysis of the data. Two of the themes are participant perspectives when asked preassigned interview questions to answer specific research questions. Four themes emerged from the data following an open coding system. From analyzing the data, six themes emerged supported by subthemes.

They Perceive Themselves as Physically Active

Who They Are

All eight of the participants described themselves as women who enjoyed being busy and couldn't sit still whether it was watching television or riding in a car. They needed to keep their "hands moving" and got "bored sitting." Betsy described her need to keep busy this way:

> As long as my hands are moving. . . . Or working in the kitchen or cooking. Just anything to keep busy. I get bored sitting. That's why I read while I am riding my bicycle. I'm sitting and I don't like that. That's just me though. My make up.

Ella described what happens to her when she sits:

> I can get really bored sitting. I fidget. People will rent videos and watch them and I just can't do that because I don't like to sit that long. I'm up and down and up and down. It's probably sort of a nervous energy at times, because, like if I do sit down, you know if it's not something really interesting I can fall off to sleep like that.

Betsy also described having "nervous energy." Marleen described herself as an "active person." When questioned further as to how she knew she was an active person she said:

> Because I can't sit still very long. I'm up and about and I can't sit and watch T.V. very long. I have to get out and do something… Growing up I didn't realize that everybody wasn't like that. I went canoeing as a late teenager and the other gal in the boat didn't even know how to hold an oar and I thought, What did she do all the time? Then I realized not everybody does outdoor things like I do, I guess.

Genetic. When questioned why they were active all eight participants said it was "genetic," just the "way I am" and "I can't help it." When asked what are the factors that motivate you to keep being physically active, Mary said,

> It's in the genes. I can't help it. I want to ride bike, play golf. I played golf three times a week this past summer. I would rather do that than wash windows. It is a gift of my nature to be happy, to be positive, be outdoors doing stuff.

Ruby described how her father loved to get out in the open air and walk and she inherited the need to get out in the open air and walk from him. When she was furthered questioned about whether her need came from the way he modeled it to her or was it genetics, she quickly responded saying, "I think it is genetically in my genes."

When Ruby was questioned further as to the activity level of her six siblings she said that only two of the six siblings where active now and not to the same degree as she was. She described how the children in the family played together growing up but the two older ones not as much because they carried the responsibility of the family. She said at one time they played freely and easily but they "just changed." Ruby again reflected on the question of physical activity and genetics and said, "No, it's in the genes. There is no doubt about it."

Just Like Father. Several of the participants perceived their fathers to be physically active. When Marleen was asked if she had a hard time getting herself motivated to go out biking, she said:

> No. I told you in my last interview that a lot of it is genetics. My dad was so active and he couldn't sit still either. That's probably where I get it . . . more genetic. I can just see it in my dad's family all the way back. They were all like that.

Dolly described her need to be active:

> I have always enjoyed being active, I guess. Even in my work I have done physical work. I enjoyed it more than being a secretary. . . . I think I just have to be doing something other than sitting at a desk.

When furthered probed by the researcher as to where that came from, Dolly said, "I don't really know. Maybe from my Dad. I don't know." When furthered probed why from her Dad, Dolly said:

> Oh, because he always had to be doing something. Well, I guess my mother was too. Maybe in a different way like in taking care of

> the house and the children and everything. I don't know. I have a daughter who is just like me. She has to be doing something constantly.

Related More to Father Than Mother

Even though the participants came from a variety of family backgrounds, socioeconomic backgrounds and family configurations, a common theme was that these women related more to their fathers than mothers. They preferred to be working and playing outdoors rather than indoors. For these eight women, their mothers stayed inside cooked and cleaned and their fathers were outside working.

Family Background

Information concerning the participants family structure was explored. Research questions regarding family income was not asked but the participants described what life was like when they were growing up. There was a wide range in responses. Ella described her family as being "extremely poor people." Life for her consisted of living without electricity, a car, wearing old clothes, and having a father who tried farming but did not make money at it.

In contrast, Mary described life where her parents golfed, paid a gardener to put in a family garden, and a "girl" who came in and helped around the house. She described her childhood as "an absolute dream childhood."

Siblings

All the study participants had siblings. The range included two participants with only one sibling to one with 12 brothers and sisters. Two of the participants who had one sibling were the oldest in the

family. The remaining six participants were a middle child in various configurations. None of the participants was an only child or the youngest in the family.

Parents

All eight study participants were born and raised in a two parent family. When asked the research question, "tell me about your relationship with your father and mother," all participants reported a fairly good relationship but described the relationship in varying ways. Two described their father as being a "big man" in terms of stature and heart. When Bertha was asked to describe her relationship with her Dad, she said:

> I see nothing negative about him whatsoever. I thought he was--I did not know until maybe, it was long after I was married--it had been years that I never know he was not taller than 5'6''. I thought he was a big guy. He never yelled at us. I have nothing but the fondest memories. We were never spanked. I think I got a swat once from Mom because I wouldn't let my brother in the bathroom or something like that . . . anyway, nothing but good feelings about my Dad. He was a very loving, gentle, and tender man.

Bertha didn't like her mother until she was older and didn't really know why.

Mary, who described her childhood as a "dream childhood," described her relationship with her parents and especially with her father by saying, "we had what we needed and lots of love. My dad was a big, gorgeous Irishman. Just beautiful."

Two participants attributed their close relationship with their father due to the fact that they were the only girl in the family for a period of time. Marleen said,

> I think being the first child, I think he always wanted a boy and took me to race car events as a child before he had a son to do

> that with . . . he just enjoyed being active and doing things like that with me too.

Martha commented on how hard she worked with her father. She was the middle child in a family of three girls. She said:

> I helped my father because I am the biggest one; and he worked me like a boy. I cultivated and everything we had to do on the farm. . . . I had to stay home and pick corn. I wanted to play basketball and Dad said, "No, I need you to help pick corn." So we stayed home and picked corn. Dad always said, "I wish you were a boy." I worked real hard as a girl, but Dad thought I could have worked harder as a boy. . . . I think that's why I worked harder. If you were a boy you worked hard. I thought, okay, I'll work hard. . . . To show him I can do it. You don't need a boy.

Martha believed her father respected her for what she was able to do and accepted her as a girl. When Martha was further questioned if it bothered her that she was doing more of the harder work she responded, "No, because my Dad and I got along good. We were very close. . . . I was his shadow."

All of the study participants were raised with a mother in the home. Most of the participants remember their mothers as being the one who took care of the inside of the house with little time for playing. The participants used words like "busy" and "hard workers" to describe their mother. None of the participants described their relationship with their mothers as close although one participant described her mom as one who enjoyed "running the house" and she was "really like one of us kids in a lot of ways." All of the participants described their mother as the one who worked inside the house, busy cleaning, baking, and cooking which none of the participants expressed desire in doing. Several of the participants had older sisters who did the cooking and seemed to enjoy it more than they did.

Although Betsy did not have an older sister, she commented on how she disliked dusting as a child and finds house work boring to this day. Betsy said:

> I had to dust, but I hated that because my mother had dark furniture and I would get done and she would say, 'hey, you didn't dust." Gravel roads, you know, and they were already dirty. That's why I got light furniture today. At least I don't have to dust.

The participants, who saw themselves as active children, seemed to relate more to their fathers. The reason for this seemed to be unclear. Whether the reason for this is that the participants spent more time with their father outside helping on the farm, liked outside work better, enjoyed being with their father more, liked their father better, or felt like they were more accepted by their father was unclear. Martha described herself as a "tomboy" growing up. She said:

> I was such a tomboy and she wanted me to act like a lady, but I didn't know how because I worked outside all the time, and she always said, Don't do this, don't do that. Put your legs down. "Why?" I would ask. I just sat with my legs up, you know.

Betsy, who reported being neither closer to her father or mother and rather neutral on either relationship remembered her mother not allowing her to do much. She said:

> Well, I followed her around. Mother wouldn't allow me to do much. I would follow her into the garden. I would sit down and eat the peas. She would say, "You get out of my garden." So, that would take care of that. I was always in trouble. . . . Always in trouble for something.

Not one participant talked poorly about their fathers like they did of their mothers. Two of the three participants who wanted to play high school basketball were not allowed to by their father because they were needed to make money, either on the farm or in town.

Physically Active Lives: Childhood Through Adulthood

Childhood

One research question assessed childhood experiences. Specifically, questions regarding physical education classes at school, neighborhood play groups and family experience were asked. Gaining an understanding of childhood experiences provided possible insights into lifelong physical activity patterns and potential themes.

Grew up on Farm. To assist in the understanding of early physical activity for the participants, questions regarding who, where, and what their physical activity consisted of early in their lives was explored. Four of the eight study participants (50%) lived on a farm growing up. They described their early activities consisting of hard work, chores, and helping around the house; inside and outside. Martha described her childhood experiences as working hard on the farm. She was one of three girls. She said:

> I grew up on a farm and worked with horses and mules. I chopped oats and picked corn….Farm work. Pick corn. Pitch hay. Chop oats. Build fence. Chop trees down and brought them up to the house and we'd have someone saw them and we'd have to split it. Carry water from the well back behind the barn to the house for laundry. Every Sunday night we had to carry pails of water. . . . I cultivated and everything we had to do on the farm.

In contrast, Mary, who did not grow up on a farm and who's family had a gardener and a housekeeper, remembered an easy and carefree childhood. She said:

> Well, in a small town we were like gypsies. We could go to the river and pick wild flowers. We roamed the city. We rode bikes, picnicked, we were in girl scouts, church groups. There were hardly any restrictions. My childhood was so free and easy. . . . Oh, wonderful. My childhood I look at like an absolute dream childhood.

Played with Siblings. When asked to reflect on neighborhood play groups all the participants spoke about outdoor activities: playing ball, sledding, swimming, riding bikes, and building play houses outside. The outdoor activities often included playing with brothers and sisters rather than neighbors. Six of the eight participants were raised in families with three or more children. One participant had 12 brothers and sisters, another had 6. Children born into families with several brothers and sisters had their own self-made neighborhood play groups. Dolly recalled:

> Well, we were 13 in our family so we always had someone to play with or fight with or whatever. We weren't poor, I guess, but we never had the clothes, of course, that children have today, but we all played games, if it was tag or hide and seek or whatever--but the neighborhood kind of did things. We had about six empty lots about a block from us so everyday we went down there and played softball. We just all automatically did it.

Physical Education Classes at School. Of the eight participants, five (63%) indicated they liked physical education classes in school. Enjoying the physical activity, wanting to play ball, and feeling like they could excel in physical education class were common comments. Ella remembered the first and last name of one of her physical education teachers. Ruby, who quickly stated she enjoyed physical education classes when asked, said:

> Always went out at recess and played. Just never could get out there fast enough and we played a lot in the snow outside during recess. We had merry-go-rounds and that sort of thing in the summertime too. We always played baseball. In fact, our schools had softball teams and we played at other Lutheran schools in the area. We would exchange that. Then when I got to high school, I had never seen a basketball game ever, but I took a great liking to it and played three years of girls basketball. Loved that. Physical education. My favorite subject. I would rather do that sort of thing than study.

Ella who disclosed what it was like to be poor, found that excelling in physical activity was one way she could "compete" with the other students in school. She indicated that what she liked best was the competition and activity. Ella said:

> I liked my physical education classes and I liked to especially tumble because I was always the smaller one and I could be the top of the pyramid. . . . Some competition. I like to be competitive and I think you'll work hard at things when you have a competitive spirit, so that's what I primarily liked. The competition and activity. . . . I could usually run faster than most kids and I love to jump rope. I could do, you know, get in with the rope and things like that some of the other kid's couldn't do.

In contrast, the remaining three informants had mixed memories regarding physical education classes. Marleen said that physical education classes in school "weren't too exciting because they were too structured." Bertha said she didn't enjoy gym much, and described her memories stating:

> I didn't like them. I felt clumsy I guess. I guess I haven't even thought about this. If we would play games and choose sides, I would never be chosen first. I didn't like that; I was very limber. I liked fooling around at home like you know acrobatics or whatever I could do, but I didn't have any problem with that. Maybe it was the whole gym thing.

Three of the eight participants referred to the desire to play basketball on the high school team. Two of the three disappointingly said that their father wouldn't let them play because they were need to help out at home. One of the three did play and recalled good memories of that experience.

Variety of Physical Activities Throughout Life

All eight participants had tried a variety of physical activities throughout their life. The participants spoke about playing baseball, riding bikes, swimming in the lake, sledding, playing house, roller

skating, ice skating, and horseback riding as children. Three of the participants described their desire to play basketball as an organized team sport. Activities that the participants engaged in after they graduated from high school included an organized softball team, walking to get somewhere because they did not have a car and biking.

As adult postmenopausal women, Marleen began ice skating and tried water skiing. Ella tried rollerblading and cross country skiing.

Physical Activity with Children. After the participants were married and had children, their physical activity centered around the children: going to the park, playing ball, swimming, building snowmen, sledding, and riding bikes with them. Ruby remembered helping her sons deliver papers. She described how she would get up every morning with one son, walk a mile to pick up newspapers and then walk several miles delivering those papers. She remembered how she walked in snow up to her thighs. With three boys, and between morning and afternoon newspapers, her family would have two or three paper routes going on at one time. After her youngest son left home, she continued to deliver papers because she liked the activity and made money. In addition to paper routes, Ruby mowed lawns several years because of the activity and money. Her youngest son helped her with the mowing until he moved away in which she continued mowing on her own.

As the participant's children got older and were in high school, the women were less physically active with them and began to do more with other women such as walking, going to aerobic classes at churches, and joining the Y. In addition to physical activities, they perceived to be staying active keeping up with the activities of the family such as

cleaning the house, cooking meals, and doing the laundry. As their children moved away, got married, and had children of their own, the participants spoke about playing with their grandchildren. The participants not only were involved in these activities with their children and grandchildren, they described how they enjoyed playing with them. Ruby said:

> Well, I played with my children a lot, a great deal in the backyard. We had a pretty big back yard and we had croquet and we had softball and now the youngest one I took to the park a lot because, of course, he didn't have anyone, you know, to play with like the older boys did . . . in the wintertime, we always played out with the sleds, built a snowman. I did a lot my children. Very definitely. I think they would tell you that too.

Not only did some of the participants engage in physical activities with their grandchildren they attributed having grandchildren as keeping them physically active. This was described in several ways by the participants. Martha liked to be active with her grandchildren. Martha said:

> Because I like to do things with them, you know. When they're small we went to the park. We did things. We had picnics. . . . I would pitch balls to them I'd give them a piggy-back ride when they were small. You know horsey back rides. You'd put them on your feet like that, get on the floor and crawl around on my hands and knees and I can't even get down on my knees now. Oh, yeah, I played a lot with them. . . . We used to walk to the park. The kids would stay with us and we would walk to the park and play on the swings and all that jungle gym stuff in the park. We used to do a lot of walking with them. . . . We used to play ball with them. I used to play ball with my own kids.

Martha spoke sadly of her grandchildren growing up. She said:

> Because they have other interests and they're older and I'm older. You know it's sad when the kids get older and they have other interests and you have to let them go and that's sad. But I'm going to--the parents are gone on vacation so I'm taking my two grandsons out for dinner tonight. I'll like that.

Bertha also spoke affectionately about her grandchildren. She said, "I have six grandchildren--which we thoroughly enjoy having here."

Several participants spoke about how their grandchildren contribute and supported them in their physical activity program. Ella, specifically described how important it was for her to stay healthy with the primary objective to stay alive. She further illustrated this point by stating:

> I have grandchildren. I know especially this one would really be devastated if anything were to happen to me. You know, she's always been that way. I know I keep thinking if I can just live until she's like 10 or 12. That is a goal of my life . . . to live where she can understand, you know.

Scheduled and Spontaneous Physical Activity. Scheduled activities are those activities that are planned, scheduled and likely to occur routinely and at regular intervals. Seven (88%) of the eight women scheduled physical activity regularly. Scheduling required some forethought and planning whereas spontaneous activities were spur of the moment often times bound by weather. Of the seven women scheduled in a physical activity, six of them belonged to fitness classes. Mary belonged to a health club and attended a class for older adults. Dolly and Betsy attended a class which emphasizes flexibility and range of motion through the local hospital. Martha and Ella attended a fitness class for older adults through the city's senior citizen's center. Bertha belonged to a health club and attended an aqua aerobics class. Marleen did not belong to a health facility but was in a bowling league and played every week. Ruby, the one participant who did not engage in scheduled activities, had attended a scheduled class for six weeks approximately 35 years ago. She attended that class only after she had injured her shoulder and was there for rehabilitation.

One participant, Betsy, spoke about how having a structured class to attend helped her be physically active. She said:

> Last year I took off the summer (from attending the class). I tried to walk then, but I wasn't very good . . . because I don't like to go out and do it. I needed the motivation. I couldn't hardly wait for September to get here so I could get back and going to class. Got to have set rules. Got to do this at this time . . . I go because I gotta go. I paid for it.

Although seven of the eight women were involved in scheduled, organized activities located in a facility, they also were involved in spontaneous physical activity on a daily basis. Attending a fitness class appeared to help them be physically active but they were active in their life without the class.

Activity Part of Lifestyle

All of the participants indicated that they had been physically active their entire lives. Examples of this were seen as the participants described their active life as a child growing up, when they were raising children, in their choice of work, and as a mature adult. Several study participants involved their children in daily activities which involved physical activity such as running errands, grocery shopping, and walking to destinations instead of driving. Ruby rode her bike with her son to do errands and get groceries. When asked how long she had been riding her bike to get groceries Ruby said:

> Well, over 30 years because our youngest is 30 years old and I know I was doing it them. And I know that I used to put him on the back of my old red bike and stick one foot in each basket and belted him to my waist. I don't know if there were children seats at that time or not. I have no idea. It would have been nice. So I've been doing it for over 30 years I know.

Love of the Outdoors

The participants described playing outside either with siblings or buy themselves. They described playing baseball games in an vacant lot, bike riding, making a house in the woods, sledding down hills, ice skating, and swimming in the lake. Several of the participants lived on a farm and did not often play with other children besides siblings. Ella described how she did not remember playing with other children but did play outside with her brother and sister. She said:

> That was the thing to get outside and play because you didn't have TV, you didn't have the radio, you didn't have anything to keep you inside. So you played outside most of the time. I did a lot of running and things like that.

Parent's Love for the Outdoors

From the data analysis, it is apparent that several of the participants were raised in families where the parents enjoyed the out of doors. Going on Sunday picnics, sledding, taking vacations (if any were taken at all) to the lake to fish or water-ski were common threads running through the interviews. Bertha described her childhood experiences relating to physical activities by stating:

> I remember playing outside and sledding when I was at home. I remember my parents swimming. We were in Minnesota once we were little and that surprises me because my parents were always old. I thought about it afterwards and I think that was because they were both Scandinavian and they were immigrants and both grew up in Sweden and they grew up doing it all the time, although they never told us we should do this.

All of the participants grew up in the Midwest with cold, snowy winters. They remembered being outside sledding and ice skating in the winter as well as outdoor activities played in warmer weather. Bertha said:

> As I said, my parents were immigrants and they liked--they never minded winter I don't think. We loved winter so we played outside

> in the snow. I still like being outside. Like to go sledding with the grandkids.

Ruby described her parents by stating:

> Many times on Sundays especially we would put warm clothing on and my father owned an acreage out in the wooded area and it was quite cold out there so we would walk the railroad tracks out there, usually every Sunday, especially if there was snow and in the summer time we would walk out there too. There were berries to pick and this sort of thing. So, we were taught to enjoy ourselves outdoors. I imagine mom was glad to get us out of the house too.

Several participants connected their love of the being outdoors and their father. These women describe their father as one who enjoyed being active outdoors. Ruby said:

> I think that I inherited my need to get out in the open air and to walk and stuff is probably from my father even though he had a car and pickup. Dad ran a store in this small town and ran it for many, many years, but he also owned a farm out in the country--probably a mile and half or two miles out there and he wouldn't have had to, he just liked to. He also owned a portion of some woods that were attached there and I remember Dad walking through there. So if I inherited this restlessness or walking that I like to do, it would be from Dad, I believe.

Marleen described this love of the out of doors and father connection this way:

> I was brought up to be active, I guess. . . . Well, like my Dad, I mentioned before, was always active and I just kind of patterned myself after him, I think. I liked to be outdoors like he did. . . . I think he (Father) encouraged us by wanting us to do the things he liked to do. He know we could learn just like he did. He learned to water-ski the year before I did. I didn't even try it when I was 12. The next year when I was 13, I tried it and got up right away.

When asked where did this love of the outdoors manifest itself, participants believed it is genetic, it is just who they are. Marleen said:

> I think it is probably genetic. I'm just an outdoors person. . . . I just enjoy being outside and don't like to sit still . . . I don't like TV that much. I would rather be outside being active.

Bertha said:

> As I said my parents were immigrants and they like--they never minded winter I don't think. We loved winter so we played outside in the snow. I still like being outside like to go sledding with the grandkids and my folks.

Few, if any of the participants talked about enjoying sewing, needlework, or making crafts. Some of them reported doing these activities but the predominant reason was that it was a way to "keep busy." Some of them said that if they are sitting watching television, they need to be doing something like knitting. All of the participants expressed a desire to be outside rather than inside. Dolly said:

> I don't do a lot of sewing. I have made a few quilts, but I'm not as interested in that as probably in outdoor things. I look forward to spring when we can go camping and I can be outdoors more.

Dislike for Mall Walking

This love of the outdoors also transcended to the choice to be physically active outside rather than inside. None of the participants enjoyed walking indoors at the mall. Some of them confessed they occasionally walk in the mall only as a last resort. The reported dislikes for mall walking included: too many people walking slowly that I have to go around, it hurts my feet, it is boring. Bertha said:

> I dislike the mall. I have no patience. If I am trying to walk fast, I have no patience with people who are walking slower like shoppers. If the mall isn't open, and there are serious walkers, I don't like them, because they are going too fast and I am in their way. I just like alone things. I would rather be outside even if it is cold, damp or rainy. I don't really mind that.

Perceived Few Barriers

Barriers to physical activity, either perceived or real, were foreign to the study participants. When asked what have been their barriers in regards to physical activity, five of the eight participants

hesitated to answer the question and their pauses ranged from 3-5 seconds. Two of the participants asked the researcher to define what I meant by barriers. After much hesitation, thought, and reflection the participants described barriers as when they were pregnant, had knee surgery, in the hospital for several weeks, and when they were physical "layed up." The barrier of not having time was mentioned by Marleen and that was in reference to not having as much time to be physically active the prior two weeks due to Christmas and having her children stay at her home.

Of the few barriers they did indicate they experienced, they described how they overcame them. Bertha described a barrier as being wanting to sleep in. Upon further questioning by the researcher about what did get her out of bed in the morning to walk Bertha said:

> I don't like to lay in bed. I'm not physically comfortable laying in bed when I am awake. I don't like to do that. That is what was nice about walking in the neighborhood. I would get right out of bed, put on my clothes, comb through my hair and I am not awake until I am down to the next block.

Participating in a physical activity in the morning appeared to be a common denominator in seven of the eight study participants. Betsy described that she would never go to her exercise class if it was held in the afternoon. Betsy continued by saying, "I got to do it first thing in the morning. If I would do it later in the day, I wouldn't ever do it, because I'm lazy."

Spouse

Family was given as a barrier for only one participant. When asked what have been your barriers in regards to physical activity, Ella quickly said her husband. Her husband was not supportive of her going

out walking after work. He wanted her with him in the house. Ella described the situation by saying:

> I would say my husband was a big barrier. You, know, he was a very possessive person. He wanted me with him at all times so you can't do things on your own. I think men of that generation or whatever were a lot of them that way. Overly possessive. I'd say that was the biggest barrier.

Ella continued by describing how she overcame this barrier. Ella said:

> My husband was a sedentary person. He expected me to be with him at all times. So my life while he was living was, you know, go to work and come home and sit. So that's why, I would walk at work. That's about as much as I could do. . . . I use to sit in the chair in the evening and think. It was bad, but there was nothing I could do about it. I think that's true about some people, especially when they are not working. They sit there and if they're not doing things (you couldn't either). . . . That's right. So as soon as he died. Freedom! Isn't that terrible? And that's on tape. But that happens. So, I decided then, "hey, it's not going to be this way anymore", because I had the urge to live. I guess that's it, and I was taking blood pressure medicine at that time and wanted to get off and I did get off for about 10 years. So, you know, I really understand the value of exercise.

Just Do it Attitude

All of the eight participants had a "just do it" attitude. They did not appear to contemplate if they wanted to go to a class, go walk or go ride their bike, they just did it. It just is who they are. They have made it part of their routine. When Dolly was asked what gets her out of bed in the morning to walk, she said:

> I just know I am going to do it. It's just something that I want to do, when I get up in the morning I just plan on doing it. . . . If I want to do something, I guess I'll just do it whether I have someone to do it with me or not.

Other participants spoke about "doing it" because it was important to them. Ella explained it this way. She said:

> There are times when I enjoy walking, you know, like in the spring when the flowers are coming up and in the fall when it's so nice. There are beautiful days, but you know when you're walking in a downpour, it's not any fun, you just really don't feel up to

> walking, but you know that you need to. . . . I'll go anyway, I wasn't feeling good today, but I knew I got to walk. . . . Because that's important to me…And it is. When we're done, I say, "Oh, I'm done." It's an accomplishment.

When Dolly was probed further on why she wants to do it she replied that she enjoyed it. The only time when she didn't get up and go walking was if it was slippery out. She didn't want to slip and fall. If it is slippery out she would either go in to a town with an indoor arena where she could walk or she would not walk that day.

Mary described how she had never perceived events or circumstances as barriers. She further described how she was hit in the eye at age seven and lost vision in that eye and that had not been a barrier. In addition, after 36 years of marriage she got a divorce without a "clue as to how I was going to survive." She knew she could work somewhere and survive. The only barriers this participant described were games played with ball because of her loss of vision and her weak arms.

The barrier of lack of time for physical activity was not seen as a barrier by the participants. The only time it was an possible barrier for these women was when they had small children at home. When their children were small, these women saw themselves as being physically active by playing with them, going to the park and riding bicycles, which is different than how they described their current physical activities at the time of the interviews.

The participants viewed physical activity as being important for them and made time for it. Marleen talked about how she was able to fit physical activity in when her children were small. Marleen said:

> I make it a priority and do it first before I run out of time. I've done that quite a bit….I just thought it was important enough to make it a priority . . . take them with me--some of them anyway

> . . . biking when they were old enough and walking or hiking through the woods.

Support System

When asked sure what factors support them in their physical activity program, most of the participants were not clear to what these were. Several of the participants described how their spouses, children, and grandchildren had been supportive in their physical activity efforts throughout the years. Only one of the eight participants, Ella, did not have a supportive spouse. The other seven participants had either supportive, encouraging or spouses who were neutral with the activity of their wives. Several women spoke about how encouraging their husbands were both in how physically conditioned they were and how much the activity had helped them. Ruby said:

> My husband thought that it was wonderful that I like to ski and that I liked to bike and he would always say to me, Ruby, I don't see how you can pump like that. If I rode my bike that far, I wouldn't be able to walk.

Dolly spoke how her other family members in addition to her husband had been a supportive factor that kept her physically active. She said:

> Well, I have three daughters that all like to walk and exercise. They don't do a lot of regular exercise, but they all walk. So, I guess I kind of inspired them even. I do more than they do. I've got a couple of granddaughters that like to come over and put a tape in and exercise with me.

Friendship was listed as a supportive factor for physical activity by several participants. The participants enjoyed being active with a friend but were not dependent on that friend on whether they were physically active or not. The participants have been asked to participant in a variety of activities by a coworker, neighbor, or

friend. Participants talked about having friends invite them to go on a walk, to a gym, ice skating, an aerobic class at a church, or to an aqua aerobic class. The same participants shared that they in turn have asked friends to do activities with them.

Marleen, who is involved in a variety of activities, prefers certain activities for different reasons. She participated in bowling, walking, biking, ice skating, and water-skiing. Ice skating was her new activity. She said, "well, ice skating I do with a friend which I probably wouldn't do on my own, but because we do it together."

Several participants did not give examples of people or events that have been supportive in their physical activity benefits but rather in the fact that physical activity helped them feel better. They felt better physically, mentally, and felt better about accomplishing something--doing the activity. Ella talked about "it is just a need--the need to be healthy and want to live."

Are Independent - Did not Rely on Others for Support

Early in their lives, the participants engaged in physical activities with others. As the women matured, they engaged in more activities independently. The phenomenon is due to two issues: the fact that there were fewer women whom they can engage in physical activity with, and that some of these women preferred to do things on their own. Whether the fact that women liked having control over their time and not have to wait for others to go active with is due to age or to whom they are is unclear. When Dolly was asked if there were some activities that she preferred to do alone, she said:

> Well, I find it's easier for me to walk on my own, because when I get up in the morning I like to do it right away, then I know I'm

> going to get it done. My husband walks with me sometimes, but he doesn't walk as far as I do, usual, but I just feel that if I do it first thing in the morning, then I know that I'm not going to turn it off.

Marleen felt the same about her preference of participating in activities alone or with others. She said, "biking is a little bit that way, because it's much easier to hop on and go whenever I'm ready without making plans." Marleen preferred to engage in activities alone but enjoyed some types of activities with others. She mentioned that the main reason she belonged to a bowling club was for social reasons not for physical activity.

What is clear is that several of the informants described being engaged in physical activity with a greater number of friends earlier in their adult life. At the time of this research project and interview, the informants had few friends they engaged in physical activities with like walking and biking. Dolly was asked about her enjoyment of physical activity. She said:

> Well, I guess, when I started walking with people I enjoyed the company and the walking and the exercise. Now, I walk with myself most of the time, but I still enjoy it.

The fact that the found they had fewer women to be active with and out of necessity, rather than choice, they engaged in activity on their own is evident by the response Ruby gave when asked if she would rather doing an active with someone else or by herself. She said:

> Well, I've gotten so use to going by myself anymore that right now I'm very content to go by myself, but my friend that is ready to go again, she and I always did enjoy it and we did have a lot of fun and a lot of laughs, and I think I would learn to enjoy it with her again.

Dolly reflected on the fact that she did not have many friends who wanted to bicycle like she did although biking alone was not her choice. She said:

> Because there is just no one there when I'm there to do it and my neighbors don't ride and I don't know a lot of people in Lavone, so I must do it by myself. I was hoping my husband would start riding the bicycle because it's kind of fun to ride on the trail because there are things that I would like to have him see that I've seen.

Dolly was not concerned about safety issues such as being out on the bike trail alone. She said there are people on the trail, she did not know them, walking and riding their bicycles periodically so she was not afraid.

Perhaps this sense of independence was fostered by their childhood. Ruby described how her father told her and her two older sisters to take the family car and take a little vacation. The three girls and one of their girlfriends drove out to Mt. Rushmore and California. Her father told her that because they had always been so good to stay home and take care of the family store and the house they should go ahead and take a little vacation. When Ruby was asked if she thought that this taught her independence, she said:

> Oh sure. Like when we wanted to leave home he knew that if we wanted to we should have that privilege, you know, and we did. He was always there for us.

Perceived Benefits of Physical Activity

The reasons why participants engaged in physical activity throughout their life was included a variety of aspects. Participants spoke about the enjoyment they received from moving, how the felt when they were done with the activity, the sense of accomplishment when

completed, and the physical and mental health benefits they received. The physical health benefits they perceived to received included: weight control, getting rid of neck and back problems and minimal aches and pains. The mental health benefits they received included: stress management, relaxation, getting rid of tension headaches, and just feeling better.

Enjoyment of Feeling of Moving

All of the participants said they liked to be physically active. The participants were further asked what was it about physical activity they liked. They were asked was it the physical activity, how they felt when they were done, the sense of accomplishment they felt or the health benefits they realized? All of the participants acknowledged that all of those aspects played a role in why they like to be physically active but the most common response was they enjoyed the activity and liked to move. Mary described her favorite activity. She said:

> I like dancing and skiing--the rhythm. There's the word. It's rhythm that I like. Sometimes I think I hear music when there's not any music. I like the music at aerobics class. She plays one that I know all the words to all the songs. I get so busy singing that I forget the moves to the class.

They like the actual movement and how it makes them feel physically. Three of the eight informants proceeded to describe how they like to stretch and how much better they felt. Bertha described an apparatus her husband made in the garage that she could use for stretching. She said:

> I like to stretch. Maybe that's one reason why I like to swim. I like to stretch my body. Once I had Dennis put up on the rafters in the garage he put some carpet or something, so I could step off the bumper in front of my car and just hang there. I have a table downstairs where you hang by your ankles and I still do that. Not regularly, but boy, every now and then that feels good.

In addition, Ruby said:

> I enjoy it. Lots of times I just want to stretch and stretch because it makes your body feel good. . . . I know it is good for me and I have the urge to do it. I just have the urge. I know I used to get teased when I was a younger mother. The only person who came out to the street and grabbed the garbage cans and ran in with them. So I even was running for, you know, in little ways.

The participants described how they just felt better because of physical activity. Bertha said that when she exercised her whole day goes right, she had a sense of well being. She believed she walked straighter which made her physically more comfortable. In contrast, when the participants were not physically active they felt sluggish, dead, and lacked energy. Bertha described it this way. She said:

> I feel sluggish. I feel like I am missing something. I think I am starting to feel the need for that. That's just what I need. I need that. I don't ever remember feeling that before.

Marleen described why she is physically active. She said, "I think determination. It is something good for me that I need to do and when I do it, I feel better." Betsy, who was not as excited or enthusiastic about exercise but engaged in it anyway said this:

> This exercise business is a pain, but I have to admit I'm still in it, and I feel better…have to have the class in order to do it, because that's where I can (complain). Otherwise I wouldn't do it at home. I do the stretches. That I can do, but the other stuff. . . . It's locked into my brain that I got to do it first thing in the morning and get it over with and Terry told me first thing--he said, "Mother, you're going to have to get something to read." So that's why I do the bike and if I get a good story, then I can sit there and read. So, I get that half hour over with. I do it for a half an hour at a time. When it's gone, it's gone. I get off.

Sense of Accomplishment

When asked if they felt better because of how their body felt from being physically active or if it was from a sense of accomplishment, the participants said both. The participants spoke how much better they felt

physically when they were done. They felt rejuvenated, had more energy, and coped with things better. When asked this question, Marleen said:

> I think it's both. My body feels better. I can feel really tired and instead of taking a nap, I go out for a bike ride, then I feel all refreshed. But then something like going on RAGBRAI, that's a real sense of accomplishment doing that.

Several informants spoke about the positive feedback they had received from friends and family about their physical activity. This positive reinforcement gave them a sense of accomplishment. When Ruby was asked if her children where supportive of her physical activity she said:

> I think they think it is great. I think they even are a little proud of it. In fact I know they are. Like when my husband died and at the funeral home people who hadn't seen me for awhile and knew me when I was younger, they moved from here, they would say, "Well, how is your mother?" They told me they would tell people that, "She's just fine." And I was, and always have been. They couldn't believe that I was still biking and cross-country skiing and that sort of thing.

Several informants spoke about seeing other inactive older individuals and noticing how poorly they got around and how many aches and pains they talked about. Ruby, and Marleen specifically said they didn't have any aches and pains.

Health Benefits of Physical Activity

The common statement the study participants made was that being physically active just made them "feel better" both physically and mentally. Several informants indicated how much better they physically feel and how much better their bodies work when they are physically active. They have fewer headaches, backaches, aches, and pains and the bowels work better. Betsy described the benefits she received from being physically active this way. Betsy said:

> I feel better. Keeps everything working right…the bowels work better because you've done your exercise. You may not get the housework done, but so what. . . . No headaches.

Physical benefits. All of the participants had been physically active their entire lives but two participants outlined a time in their life when their health was not as good. Dolly and Betsy spoke about going to a chiropractor for their health problems and neither of them found much relief. When Betsy began to include more activity in her day she began to find relief. She joined an exercise class at the Y and began to ride her stationary bike six mornings a week for 30 minutes to get rid of tension which she noticed in the form of headaches and backaches. She had continued these two activities for over 30 years. Dolly developed muscle spasms due to her job where she lifted heavy trays of food. After not finding a doctor or chiropractor who could help her long term she attended an exercise class after she saw it advertised in the newspaper. She had attended the class over three years and only saw the chiropractor a few times a year. She believed the stretching she did in the class helped her back.

Betsy continued to attend the structured activity class for the physical benefits she had received. Betsy said:

> The main thing I do is for to keep my muscles in tone, so I don't have to go to the chiropractor. I haven't been to one of those for like maybe 3, 4, 5, or maybe 10 years. Exercise. Anything where you stretch and use your back.

Betsy described the physical benefits of physical activity. Betsy said:

> It just keeps me on the ball. Comparing my sister and myself. My sister doesn't do much activity. She complains all the time about her legs hurting and this and that. Well, she needs to use them and move them. But she doesn't. . . . I made up my mind when you

> have to go to a chiropractor to get rid of headaches or if your back hurts, it's time to do something about it.

Several study participants were exercising to help them control their weight, especially around their waist. Another participant realized that exercise is not a quick fix to weight loss and in fact felt that those that think that way are the individuals that quit exercising when they see they have not lost any weight. When asked what has influenced you to sustain physical activity, Betsy said, "Because I feel better. You don't lose any weight. Sue (exercise leader) stressed that for years. "You don't lose any weight on this Betsy."

Mental Benefits

Several participants talked about how being physically active helped them cope better with life events and was a form of stress management. Ella talked about how she didn't mind walking by herself because she could solve a lot of problems and do a lot of planning. When Ella was asked if walking helps her manage stress, she said:

> I think it does to a certain extent, because you know I do have stress and I think I can, you know, because you have problems associated with stress all the time, so sometimes you can walk and you can get the answer by walking and thinking about it, you can certainly get the answer to your problem. . . . Once you do it, you can take away your stress like "Well, I really should call and talk and what kind of questions should I ask" and things like that and then you can manage it to a certain degree.

In addition, participants found that physical activity helps them to get rid of excess energy and it relaxes them.

It is clear from these eight participants that although the health benefits they perceived are an important factor for sustaining physical activity, the most important factor is, the participants liked to move.

They liked activity, they like how their bodies felt when they moved, they had a sense of accomplishment when they were done because they knew it was good for them, they had received positive reinforcements from family and friends about their physical activity, they were encouraged to be physically active as a child, and they continually received health benefits from being active.

A reason Dolly gave for the importance of staying physically healthy was that she didn't want to be laid up where someone has to take care of her. She said:

> My children and I don't want to go in the nursing home and I feel that if I stay in good health and I won't have to worry near as much about something like breaking a hip or something and if I did fall down or something I think that I would heal faster since I am more active.

Summary

It is clear from these eight participants that although the health benefits they perceive are an important factor for sustaining physical activity, the principal theme is that the participants like to move. They like activity, they like how their bodies feel when they move. In addition, they have a sense of accomplishment when they are done because they know it is good for them, they have received positive reinforcements from family and friends about their physical activity, they were encouraged to be physically active as a child, and they continually receive health benefits from being active. When Mary was asked why she is physically active now, was it for health reasons. She said, "I don't even think about that. I don't think about the benefits. I do it because it's me!"

Chapter 4

DISCUSSION

This qualitative multi-case study investigated the contributors to sustained physical activity and the role physical activity has played in the lives of eight lifelong physically active women between 58-72 years of age. In-depth semi-structured interviews and participant journals were used to elicit perspectives to answer the following questions:

1. In a population of lifelong physically active women, what are the self-reported contributors to lifelong physical activity?
2. Further, for lifelong physically active women,
   a. what are the motivating factors for sustaining physical activity?
   b. what are their childhood experiences?
   c. what factors have been barriers to sustaining physical activity?
   d. what have been their support systems?

A purposive sample of eight Caucasian women was selected using the theoretical non-probability sampling techniques. The general profile of the sample was that of postmenopausal adult women who were high school graduates with no post-high school education or training. They were born, raised, and presently lived in the Midwest. They were mothers and were or had been previously married. The mean age of the group was 68.1 years with a range from 58 to 72 years of age.

Data were collected over a period of two months. The primary method of generating data was two in-depth interviews to discover

subjective ideas and experiences of sustained physical activity. Additional data collection consisted of participant journals and researcher memos. Interviews were semi-structured by an interview guide of eight questions addressing factors that have contributed to sustained physical activity, childhood experiences, barriers, and support factors for physical activity. Interviews were tape recorded.

Audiotapes were transcribed verbatim, hand coded, clustered and analyzed. Data analysis techniques included content analysis and constant comparison.

Contributing Factors

For lifelong physically active women, the contributors to lifelong physical activity that were self-reported by the women consisted of support from family, and just being healthy enough to engage in activity. Some of the women felt fortunate to be healthy so they could continue to be active. One wonders which comes first, being healthy so one can be active, or does one's activity enhance health status so they can continue to be active? The women were not quick to give credit to the reason they were healthy because they had continued to be active. They attributed much of who they are and what they do to genetics.

It is clear from the data, that the contributors to sustained physical activity for these eight women is multi-faceted. These women had physically active childhoods. None of the women were an only child with four of the women in families consisting of five children or more. These women felt more connected to and spoke more positively of their fathers than their mothers. They enjoyed being outdoors. They participated in a variety of activities as children and as adults. For

the most part, they liked physical education classes in school with one participant remembering the name of a physical education teacher. They integrated physical activity into their lifestyle by riding a bike or walking to complete errands, bringing their children along on errands, and incorporated physical activity in their leisure activities. They enjoyed playing with their children, going to the park, going on walks, picnics, riding bikes, playing baseball, sledding, and going on active vacations together. Having the social support of friends and family was a contributing factor for sustained activity but the women did not rely on a social network. The father was a role model for them illustrating hard work, the love of the outdoors, and physical activity. They chose a variety of activities and engaged in them at a moderate intensity. They were adventurous, trying ice skating, downhill skiing, rollerblading and water-skiing in their postmenopausal adult years. They preferred to be engaged in physical activity rather than sitting, watching television. They perceived few barriers to physical activity at any time of their life.

In addition, it is clear from the data that these eight women perceive the reason they are physically active is because that is the way they are. They enjoy being active and see it as a privilege to be able to move and do not want to stop. As one participant described, if I stop doing some activity I can do, like run, skip, or cartwheels, then I may never be able to do it again. So, her philosophy was don't stop doing something you can still do.

Motivating factors

It was clear that the women believed their motivation for physical activity was genetic. They believed it was just who they were, it was in their genes, and many of them believed they were genetically like their father. Several of them spoke about how their farther was active and enjoyed getting outside. These women enjoyed being outdoors and found themselves motivated by getting out and getting fresh air. None of the women had siblings currently who were as physically active as they were. Several of the participants reported how growing up, their older sister(s) preferred to help their mother inside the home by cleaning, cooking, and baking. Having older sisters who helped inside the home allowed the participants the opportunity to spend more time outside. The participants reported that the older sisters had grown up to be less physically active than they were and exhibited weight problems.

Enjoyment

Except for one, all of the women enjoy being active. One participant was active because she felt better when she was active. She considered it something she needed to do but did not express that she enjoyed being active. All eight women acknowledged that physical activity made them feel better. They enjoyed the actual movement and/or the accomplishment of doing something healthy for themselves. This finding is consistent with findings from Jaffee et al. (1996) where over 66% of active women expected physical activity to be fun and bring enjoyment.

In research conducted by Sallis et al. (1989), the determinants of self-reported vigorous exercise in a community sample of over 2,000

respondents were examined. In this study, researchers found that the lack of enjoyment from exercise was a barrier. The major differences between the Sallis et. al. (1989) study and this research was two-fold, the intensity of activity: vigorous exercise compared to moderate activity, and how the women overcame the barrier of exercise not being fun. For the women who were not as positive as to the enjoyment they received from activity, they overcame their barrier by taking two actions. They knew they needed to engage in activity first thing in the morning and/or have a class to go to so they would get the activity in. One women mentioned that if she didn't get her activity in first thing in the morning it would not get done.

Positive Past Experiences

Several women spoke about the feeling of moving, wind in their hair, and the feeling of flying. Being able to move reminded them of playing and being active when they were young. One women who took up ice skating at 58 commented that the activity reminded her of when she was a child. Another women who recently began to roller blade spoke of her memories of roller skating at an indoor rink when she was a child. These women enjoyed the feeling of activity but the movement itself brought back memories of an active childhood.

The importance of having positive early physical activity experiences is consistent with the literature. Mayo (1990) found that physical activity practices were shaped by early family experiences and later peer group activities. Childhood physical activity was fostered by parents who were active or encouraged play. Sallis et al. (1989) and Garcia and King (1991) found that past accomplishments strongly

influenced self-efficacy, the belief that one is capable of successfully adopting and maintaining a regular exercise regimen. If one has always been physically active, then one would hypothesize that these eight women exhibit high self-efficacy scores.

Engaging in physical activity only for the health benefits was a small contributing factor of sustained activity for these eight women. According to a leading researcher in the field of women and physical activity, Bess Marcus, participants may initially state they were active for health reasons but that isn't the issue as time goes on (personal communication, 1997). This is in agreement with findings from these eight women who have been lifelong physically active. The health benefits they derived from being active played a role but was not a dominate issue. Physical activity was just part of who they were. For most of the women, they engaged in physical activity because they enjoyed it and it is just who they were.

Just Do it Attitude

They had a "just do it" attitude. Not much time was spent contemplating if they wanted to be active or go to a class or not. These women just did it. At the time of the interview, physical activity was something they just did, it was part of their lifestyle.

When asked by the researcher are there times when they don't feel like getting out of bed to go walking they said yes but they get up anyway, they just do it without analyzing it in their head. This finding is in agreement with the literature. In a study by Jaffee et al. (1996) only 16.7% of active women cited lack of discipline as a barrier or

obstacle to physical activity. For inactive women, lack of motivation was cited by 61.5%.

Support Systems

Three support systems were identified: spouse, friends, structured classes. The support systems varied over time.

Spouse. None of the participants in this study engaged in activity on a regular basis with their spouse. According to several participants, their spouses were unable to keep up with them. The participants were active occasionally with one other female friend but otherwise were active on their own. The support the participants spoke about in regards to their spouses was not one most of them brought up on their own. When asked or probed further if their spouse was supportive in their activity, all but one participant said yes. The participants described the support they received from their spouse as accepting. They accepted the fact that their wife wanted to engage in physical activities and received some enjoyment out of it. Spousal support was generally understood by the participants but it was not a major support given by the participants. Perhaps this is because physical activity has been part of their life and it is a given that that is who these women are. One participant said she does it for her. It was her time. It was that fact that spouses supported. This finding is consistent with the literature. Support and encouragement from a spouse or partner was rated important by 50% of women in a study by Jaffee et al. (1996).

For Ella, having no spousal support was her barrier. Lack of spousal support was found to be a barrier is several studies (Lutter

et al., 1998; O'Brien & Vertinsky; O'Neill & Reid, 1991; Verhoef & Love, 1994; Whetstone & Reid, 1991). She overcame her obstacle by incorporating physical activity into her lifestyle around her husbands demands. She walked for years during her noon hour at her place of employment. After he died, she described a sense of "freedom" because she wasn't tied down to his demands. This women found the support of a female friend, joined a walking club, went on walking trip organized by the walking club, and walked when she wanted to walk.

Friends. Initially, these young to middle-aged adult women, engaged in activities with other women. As time progressed these women engaged in activity independent of other women. There were two apparent reasons for this shift. First, as the women aged, there were fewer women they knew that had sustained activity. Second, it appeared that these women may have preferred to be active alone. They could decide when to go and how far to walk. They enjoyed having that control. Most of the women were engaging in activity early in the morning which may have made it difficult to find others with that same internal biological schedule.

Structured Classes. Several of the participants found it helpful in maintaining physical activity if there was a structured class to go to. By attending this class, they would participant in physical activities that their "routine" activities would not provide. Although all eight women did other activities than those in structured classes several found attending helpful in maintenance.

Family Support. Having grandchildren and grown children acknowledge and support the women's activity was considered a

contributing factor for some women. It was clear that the women enjoyed moving and if they could engage in activity with their children that was a contributing factor for them. One participant described how her granddaughter enjoyed coming over and exercising to a video with her.

Who They Are

Repeatedly, the women referred to their desire, enjoyment, and need to be physically active as just who they are. They perceived themselves as physically active people. They had few, if any, negative early physical activity experiences which may have influenced self-efficacy, the belief that they are capable of successfully adopting and maintaining a regular exercise program (McAuley, 1992). Because these participants were active as children and throughout their life it is probable that those past experiences and mastery accomplishments contributed to their sustained physical activity practices (McAuley & Courneya, 1993). Findings from this study support the theory that people's perception of their capabilities affect how they behave (O'Leary, 1985). These women perceived themselves as being physical active, therefore they acted as they were. This is demonstrated in their life histories. Throughout their life, these women incorporated physical activity into their lifestyle. They not only engaged in physical activities they were accomplished in, they tried new activities later in their adult life. This is due to the fact that they believed that they were capable of being successful in additional activities (McAuley, 1992). New activities such as ice skating, water-skiing, roller skating, and rollerblading were initiated when the women were in their 50s and 60s. It is probable that this perception of being capable in engaging in

physical activity began in childhood and was supported in various ways and from various individuals: fathers, physical education teachers, friends, spouses, children and was continued and supported throughout life.

Childhood Experiences

These women had not only physically active childhoods but positive childhood physically active experiences. Because the women came from families with another sibling or siblings, one participant had 12 siblings, they had their own play groups. These women described activities such as: riding bikes, playing ball in vacant lots, horseback riding, going roller skating, and ice skating. They remembered playing outdoors in the winter and summer. They described their parents as hard working, busy people. They described walking and riding their bicycles for fun and for the purpose of getting somewhere, for transportation. For some participants, doing chores on the farm played a role in developing positive childhood experiences. They were proud of their hard work on the farm and enjoyed being outdoors.

Women in this study had at least one strong role model for them illustrating hard work, the love of the outdoors and physical activity. The role model for all eight women in this study was their father. According to Mayo (1990) childhood physical activity was fostered by parents who were active or encouraged play. Physical activity practices were also found to be shaped by early family experiences and later peer group activities. In addition, adult patterns of physical activity were generally consistent with established childhood patterns (Mayo, 1990).

They described being connected more with their father than their mother. Whether it was due to the fact that the father was doing more physical work outdoors, that they received more positive feedback from their father, or their father was less critical of them was unclear. What was clear, was that these women connected and enjoyed being with their father. Only one of the eight women interviewed spoke warmly about her mother. The women spoke about how their father was outside working or just enjoying the fresh air. Interesting, these women enjoyed being outdoors.

Barriers

It was clear from the data, that these eight women had few if any perceived barriers. When asked what their barriers for physical activity had been several participants paused for several seconds before they could report any barriers. Upon further probing several women talked about physical barriers such as "when I as pregnant", "was sick", "in the hospital", or "hurt my back."

A lack of time, which is the most frequently reported barrier in the literature, (Blair et al., 1992; Verhoef & Love, 1994) was not a barrier for these women. They were able to find ways to incorporate activity into their life throughout their life.

Even though several participants reported that they may not have been as physically active when their children were babies they did not consider themselves sedentary. When asked if time was a barrier currently or previously when they had young children, Marleen said maybe. Marleen raised five children, including one set of twins. She overcame the time barrier and family commitment by including the

children in with her activities. Throughout the life histories, women provided numerous examples of how they included their children in their daily physical activities. They took their babies and children on walks, went to the park, walked where they needed to go, and played ball with their children. They perceived themselves to be active women and if there was a period they were not as active, they engaged in activity when they could. This may be partially due to the fact that these women enjoyed physical activity and the health benefits of well-being that they received from being active.

Natural History of Exercise Behavior

The natural history of exercise behavior has been described as complex and dynamic. A model by Sallis and Hovell (1990) illustrating the four phases of the natural history of exercise is presented to identify determinants of exercise behavior. In this model, the individual begins as being a nonexerciser, sedentary. Using this model assumes that individuals begin as sedentary beings. From interviewing these eight women, it is clear that not all individuals begin as sedentary beings. These women have always been physically active. They perceive themselves as always having been physically active. From what we know about the benefits of moderate activity (Centers for Disease Control and Prevention, in press) a model that illustrates the natural history of physical activity is warranted. This researcher has designed a model that takes into account that some individuals begin as physically active beings and never loss that capacity or "need." They may go through periods of time that the frequency and intensity is not as consistent but never become sedentary at least they do not perceive

themselves as sedentary beings. This perception, their self-efficacy, may be the key factor in sustained physical activity. Their self-efficacy or belief that they are capable of successfully adopting and maintaining regular physical activity is important (McAuley, 1992). It is the individual's perception of what they can or can not do not the actual skills that an individual has that is the important factor (Bandura, 1986).

The Wave Theory of Physical Activity

If individuals are vigorous in their activity, they have a greater chance of dropping out, getting injured, or not being able to find the time as they go through life stages and societal demands of time and energy. If the individuals are moderate in their choice and intensity of activity, they are able to sustain activity to a greater extent. Moderate activity like riding bikes around the neighborhood, playing ball, sledding, walking to complete errands, can be and is incorporated into one's lifestyle. Vigorous exercise can not as easily be incorporated into one's lifestyle. One usually needs to go to a gym, go on a run, or on a long bike ride. It is more difficult to bring children with you when you are engaged in vigorous activity. Time, or the perceived lack of time, becomes a barrier. This is illustrated by these eight women and is supported in the literature.

It is this researcher's argument that one fundamental contributor to sustained physical activity for these eight women is that they were moderately active throughout their lives. They weathered the natural ebb and flow of life's transitions: adolescence, young adulthood, marriage, pregnancy, raising children, menopause, and empty nest syndrome. Their

choice and ability to engage in physical activity flowed with their life. It was like a wave; sometimes engaging in more activity than others but always incorporating physical activity into their life.

Understanding that one begins as an individual who is not sedentary but moderately active, may be a key to sustaining moderate activity. An important factor may be to avoid making large waves between vigorous activity and being sedentary. By engaging in vigorous activity one increases the risk of injury and dropping out of activity all together.

A consistent theme of moderate activity that fluctuated throughout life was found in this research that seemed contrary to the natural history of exercise by Sallis and Hovell (1990). An alternative theory that might explain lifelong activity was supported by findings in this research. This model is called the wave theory of physical activity.

Key factors in the model of wave theory (see Figure 2) that is supported by this research were:

1. The understanding that individuals began and are naturally active not sedentary human beings
2. The activity was moderate
3. The activity was seldom vigorous for long periods of time
4. There were fluctuations in the intensity and duration of activity through their lives
5. When the participants were in a wave that was flowing towards sedentariness they provided physical reasons why: were pregnant, recovering from knee surgery, back surgery, or were injured. Soon after they recovered physically, they were on a wave back into the moderate activity range.

6. The activities engaged in were moderate in nature and varied throughout the week, month, and year.

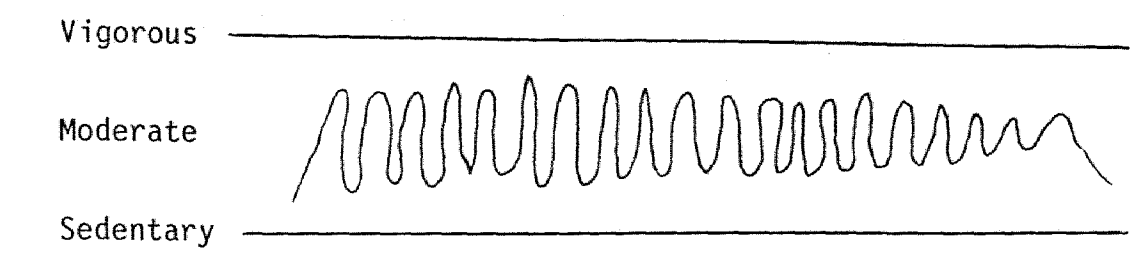

Figure 2. Natural wave of physical activity

Summary

The key issue is that these women liked to move, they liked how they felt while they were physically active, how they felt when they were done, the sense of accomplishment. They received positive reinforcement early in life. Some of the reinforcement came from their father, helping out at home, in physical education classes at school and later in life from friends and family.

The women had few perceived barriers. The number one barrier cited in research is time. Women in this study did not see time as a barrier. The women had a supportive network but they did not rely on this network to be physical activity. These women chose a variety of activities and engaged in them at a moderate intensity. They incorporated physical activity into their lifestyle by walking to the grocery store, to the mall, to the post office, and to the bank. They were active because they enjoy it and saw it as part of who they are.

The wave theory of physical activity appears to provide a more adequate explanation for sustained moderate physical activity for the participants than the natural history of exercise behavior model. The wave theory of physical activity addresses the natural ebb and flow of life's transitions and physical activity.

Chapter 5

CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS

Conclusions

As a result of the 1996 Surgeon General's Report on Physical Activity and Health, we now have a national level focus on promoting physical activity. Findings from this study support the 1996 Surgeon General's Report of moderate activity, especially for women. Exploring how to incorporate moderate physical activity into the lives of females of all ages on a national and local level is essential. The findings of this study provided a framework on how this can be accomplished.

To meet the national goal of increasing physical activity, focusing on moderate activity rather than vigorous activity for individuals of all ages is important. The focus needs to be on maintaining moderate activity levels in children, young adults, and mature adults. This may minimize burning and dropping out of physical activity. We need to overcome the notion that if physical activity is not competitive or does not raise the heart rate to the recommended target heart rate zone for at least 20 minutes three times a week, it is not valuable. We need to provide resources, opportunities, and examples for moderate activity at national and local levels. We need to provide opportunities for females of all ages to engage in physical activity be it in their neighborhood playground, school physical education classes, work sites, or community recreation programs. Role models that have

overcome barriers to physical activity and have discovered how to incorporate physical activity into their lives need to be highlighted.

Using the term physical activity rather than exercise is the first step. Exercise often implies structure, work, and pain. The connotations are negative. Using the term moderate activity has a more positive connotation and is perceived to be manageable and able to be incorporated into one's lifestyle more readily.

Individuals need to be educated through public health departments, public service messages, private business, and through the educational system of the guidelines for moderate activity outlined by the 1996 Surgeon General's Report. Individuals need to be provided examples on what constitutes moderate activity. Providing individuals examples on how they can maintain activity throughout their lives is beneficial because barriers, such as a lack of time, can be overcome. Examples on how this can be accomplished include: parking far away from the entrance door in a parking lot, walking instead of driving when conducting errands, taking the stairs instead of the elevator or escalator, and playing outdoors with children. Focusing on how to incorporate activity into one's life rather than taking separate units of time away from one's family to participate in activity could be helpful for individuals to be physically active throughout their lives and overcome barriers.

Home

If we as a society are to change the course of inactivity in our country it starts in the home. An active parent role model establishes a foundation for the child. This role modeling continues throughout life, from childhood through adolescence and into adulthood. Physically active

women in their 70s were still found to be a role model to their adult children. Participating in physical activities together can promote and encourage active lifestyles. In addition to promoting physical activity, instilling the love of the outdoors and physical activity appears to be a powerful combination in sustained physical activity lifelong. For many children growing up today, television and computers compete with their time spent outdoors. For other children, safety issues as well as childcare conditions makes it difficult for children to get outdoors as much as children did 70 years ago. It is apparent that children need to be physically active, preferable outdoors, early in life. We need to encourage outdoor play and providing community resources for this to become a reality. Getting outdoors and experiencing the wind in our hair and the sensations of movement can play an important role in lifelong physical activity.

None of the eight women in this study expressed interest in being indoors and watching television. It appeared that the fact that these women spent a great deal of time outdoors playing with friends or doing chores early in life had stayed with them for over 50 years. In turn, these woman passed on this love of the outdoors and activity to their children as they were growing up.

We need to have individuals of all ages see themselves as physically active human beings. This is fostered by experiencing positive physical activity early in life. As we perceive ourselves to be physically active, we are more likely to act like physically active beings. With this comes the realization that competition, having one person be the best in an activity, may diminish the perception that one

is adequate in the area of physical activity. For some, competitive events may enhance physical activity, for others, it diminishes it.

School

To increase regular moderate physical activity, schools can play a major role in developing and maintaining physical activity in our youth, especially girls. A steady decline in the rates of participation in physical activity in adolescent girls has been reported (Lutter et al., 1998). The enjoyment of moving needs to be fostered in our physical education classes and recess periods in our schools. Two important factors need to be addressed in our schools: physical activity classes need to be daily and designed to promote lifelong activity. Physical activity for children needs to focus on the enjoyment of moving and less on skill development and competition. Schools need to provide regular, daily physical activities that are enjoyable, promote lifelong activities, and that are designed for all, not only for the physically skilled child or athlete.

Communities

The important role communities play in providing opportunities and resources in fostering physical activity in individuals of all ages can not be overlooked. Providing resources for parks, pools, community centers, bike and walking paths is essential in promoting physical activity within our communities. Neighborhood playgrounds and school yards are critical to the maturation process of young children and in fostering active lifestyles in individuals and in families.

In addition to providing resources and opportunities for individuals to engage in unstructured physical activities, communities

need to continue to provide opportunities for structured and organized physical activities such as community walks, bike rides, or open pool hours. Many of these organized activities encourage groups of people and families to engage in them together which provides support systems in maintaining physical activity.

We need to promote physical activity as being something one can incorporate into their daily life, the importance of choosing an activity that is enjoyable, and trying a variety of activities throughout our lives. We need to rid ourselves from the mindset that getting older means becoming sedentary. Often with aging comes fewer family responsibilities which enables individuals to maintain and increase activity rather than "retire" from physical activity.

If we as a society are going to meet the goals of the nation set by the 1996 Surgeon General's Report on Physical Activity of getting more individuals, especially women, physically active we need reflect on the findings of this study and conduct additional research in the areas of moderate activity and life histories of individuals who have been physically active their entire lives. We need to foster physical activity in the home, in schools, and in community settings by providing opportunities to engage in lifelong physical activities. We need to focus on the enjoyment of regular movement and provide opportunities and examples on how one can incorporate physical activity into their daily life for a lifetime.

Limitations of the Study

Threats to this study include:

1. Life history research is based on the life experiences of individuals from the perspective of how these individuals interpret and understand the world around them (Gall et al., 1996). How these individuals remember life experiences is a limitation of this study.
2. Self-reported
3. The Wave Theory of Physical Activity has not been tested.
4. The emerging themes did not exhibit equal intensity from each participant.
5. The possibility that the participants were not honest with the researcher.
6. Income level not controlled.
7. Verification of activity level for criteria #1 and #2 not assessed.

Recommendations For Future Research

The need for further study includes:

1. Testing the Wave Theory of Physical Activity with empirical studies. Comparing those engaged in vigorous activity to those engaged in moderate activity.
2. Additional studies that would look at the change of amplitude, frequency, and width of the wave throughout the activity life span.

3. Studies of intensity levels that contribute to lifelong activity.
4. Interview family members, friends, and coworkers of the participant to gain their perception of the experience physical activity has played in the lives of those in the study.
5. Interview the daughters of the participants in this study.
6. Replication of this study in other parts of the United States consisting of other climates.
7. Verification of findings across a larger population: minorities, women living in urban areas, and/or college educated.

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Appendix A

QUESTIONS TO DETERMINE SELECTION OF SUBJECTS

Questionnaire #1

1. Your age is? Please circle
   59 and younger 60 - 70 71 and older

2. Your racial background is? Please circle
   Caucasian Noncaucasian

3. Are you a mother? Please circle
   No Yes (list number of children and years born)

4. The highest educational level you completed is? Please circle
   some high school high school graduate some college

5. Your current marital status is? Please circle
   married widowed divorced separated single

6. Are you physically active? Please circle
   Yes No

7. How long have you been physically active?
   a. 0 - 3 years
   b. 4 - 10 years
   c. 11 - 20 years
   d. 21 - 30 years
   e. My entire life

8. List and describe what physical activities and length of time you participated in the last 7 days.

Appendix B

PROTECTION OF HUMAN SUBJECTS

Procedure

The Informed Consent Form contained information of the rights of the research subject (participant). Participants in this study had the right to an adequate understanding about the research before they were asked to decide whether or not to participate. Participants were allowed to ask questions before, during, and after participation in the research. A participant's decision whether or not to participate was made without coercion or duress. If the participant decided to withdraw from the research, they were able to without adversely affecting the relationship of the subject to the investigator or to Drake University. The safety, privacy, dignity, and confidentiality of the subjects was the first priority when conducting the research. Participant anonymity was secured. Participants were asked to review typed transcripts for accuracy and permission to use the data in the research. For confidentiality, the names of study participants, spouses, and locations were changed. The tape recordings are only available to the researchers for the research project. The voice tapes of the participant's interviews will be destroyed five years after the researcher has defended the research. Participants will be debriefed after the researcher has defended the research.

Consent Form

You are invited to participate in a study of physical activity and women. We hope to identify and understand contributors to sustained physical activity and the role physical activity has played in the lives of lifelong physically active women between 60-70 years of age. You were selected as a possible participant in this study because your name was recommended by a friend or because we met and you said you were interested in being interviewed.

If you decide to participate I, Rebecca Lang, will ask you to participate in two to three tape-recorded interviews, each approximately 45 minutes in length, concerning contributing factors of your physical activity. Each interview will be scheduled according to your preferences for place and time.

The interview procedures have no direct risk or discomfort other than taking your time. All information you give us will be held confidential through the use of code numbers on the interview forms and tape cassettes. The tape recorder will be turned off whenever you wish. Your name will not appear in any report. The voice tapes of the interview will be erased five years after the research is completed.

If you decide to participate, you are free to discontinue participation at any time without prejudice. You will have the opportunity to ask the investigator any questions concerning the study before the interview starts and we will answer any questions that you may have concerning this study or the procedures we are using at any time. You may decline to answer any questions during the study.

You will be offered a copy of this form to keep. You are making a decision whether or not to participate in this study. Your signature indicates that you have read the information provided above and have decided to participate. You may feel free to discontinue participation at any time without prejudice after signing this form should you decide you no longer want to participate.

Participant's Signature _____ Date _____

Appendix C

EXAMPLES OF MODERATE AMOUNTS OF ACTIVITY

Washing and waxing a car for 45-60 minutes — Less vigorous, more time
Washing windows or floors for 45-60 minutes
Playing volleyball for 45 minutes
Playing touch football for 30-45 minutes
Gardening for 30-45 minutes
Wheeling self in wheelchair for 30-40 minutes
Walking 1 3/4 miles in 35 minutes (20 min/mile)
Basketball (shooting baskets) for 30 minutes
Bicycling 5 miles in 30 minutes
Dancing fast (social) for 30 minutes
Pushing a stroller 1 1/2 miles in 30 minutes
Raking leaves for 30 minutes
Walking 2 miles in 30 minutes (15 min/mile)
Water aerobics for 30 minutes
Swimming laps for 20 minutes
Wheelchair basketball for 20 minutes
Basketball (playing a game) for 15-20
Bicycling 4 miles in 15 minutes
Jumping rope for 15 minutes
Running 1 1/2 miles in 15 minutes (10 min/mile)
Shoveling snow for 15 minutes — More vigorous, less time
Stairwalking for 15 minutes

A moderate amount of physical activity is roughly equivalent to physical activity that uses approximately 150 Calories (kcal) of energy per day, or 1,000 Calories per week. Some activities can be performed at various intensities; the suggested durations correspond to expected intensity of effort (U.S. Department of Health and Human Services, 1996).

Appendix D

INTERVIEW QUESTIONS

1. Tell me about yourself?
2. What factors have influenced you in sustained physical activity?
3. What are the factors that motivate you?
4. What are your early childhood experiences?
   a. Physical education classes at school
   b. Neighborhood play groups
   c. Family: mother, father, siblings
5. Was there a time in your life when you were not active?
6. What have been your barriers in regards to physical activity?
7. What factors support you in your physical activity program?
8. Why do you think some people are physically active and others are not?
9. What are the reasons people you know have started exercising programs but have quit?
10. Is there anything health professionals can do to motivate people to be active?